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TEXTILE WORLD

MARCH • 1945

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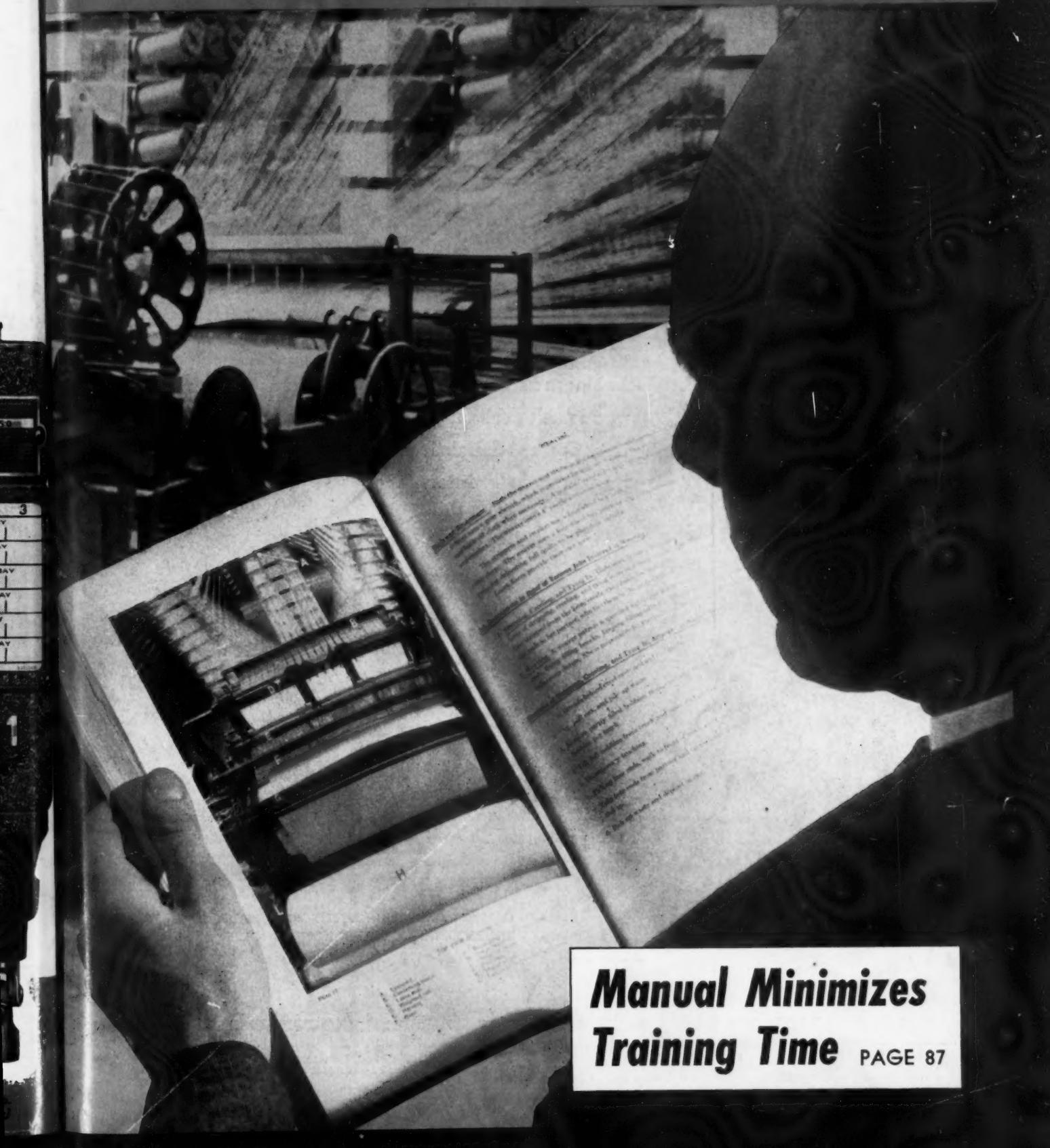

Manual Minimizes Training Time

PAGE 87

"Cash on Hand"....

the Number One Item *on your financial statement helps you finish whatever you start*

When you have a good cash position you are naturally more capable of making plans to take a strong future position amongst your competition. You know you can hold it . . . But it will not be an easy matter to keep your current assets liquid—unless you are properly *equipped* to do so. We suggest that you investigate now to find out *why* the many successful firms we serve say that Commercial Factoring is the type of business finance that best helps them to *maintain* a good cash position—yet meet new opportunities when they present themselves. A discussion between us may prove mutually interesting.

COMMERCIAL FACTORS CORPORATION

Fred'k Vietor & Achelis, Inc. Established 1828
Schefer, Schramm & Vogel Established 1838
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THE CFC PLAN IS NOT LIKE ANY OTHER FACTORING SERVICE . . . THE DIFFERENCE IS IMPORTANT

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40% More Cloth

High Speed Looms will weave all the way from 20 to 40% More Cloth per Weaver than Your Present Looms could in their Best Days

Overtime Operation and Wartime Pressure

Has taken Heavy Toll of Your Present Looms and Left them in Poor Condition to Meet the Great Demand for Textiles when Peace Comes

Are You Keeping Intact

That Reserve You Started for the Purchase of New Looms when the Signal to Go Ahead Comes?

You're Going to Need It

Draper Corporation

Atlanta Hopedale Spartanburg

an Old Product

TAKES ON NEW TASKS

Plain, old-fashioned Bicarbonate of Soda is an amazingly versatile chemical product. Household remedy for many common ills . . . key ingredient for dozens of pharmaceuticals . . . basic in baking powder and millers' choice for self-rising flour—"bi-carb" plays its homely, useful roles.

"Bi-carb" is just as essential in hundreds of industrial operations . . . is the active ingredient in several types of fire fighting equipment . . . helps tan leather . . . prevents sap stain in lumber . . . performs importantly in the production of plastics, sponge rubber and in heat-treatment of special steels . . . neutralizes acids and removes caustic.

Through Mathieson Research, "bi-carb" assumes great new importance in the textile industry. Commercially developed, Mathieson's new process for removing caustic with "bi-carb" speeds up production, lowers cost, eliminates acid's disadvantages . . . removes caustic by *changing* it into sodium carbonate (soda ash).

The Mathieson Research and Technical Staffs are also applying "bi-carb" experience to certain phases of the paper industry. Perhaps their accumulated knowledge of "bi-carb's" versatility may hold important meaning for you—may bring to light possibilities you haven't thought of. *Co-operation means progress for all.*

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BICARBONATE OF SODA . . . CAUSTIC SODA . . . SODA ASH . . . LIQUID CHLORINE . . . CHLORINE DIOXIDE
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CAKE . . . . DRY ICE . . . . CARBONIC GAS . . . . SODIUM CHLORITE PRODUCTS . . . . SODIUM METHYLATE

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THE *Long-Range View*

Plan for Insuring PROSPERITY

It would be strange—wouldn't it?—if in the half-forgotten early days of American textile manufacture the textile industry had, unconsciously and unheeded, shown the world how to eliminate business depressions. But a little study of industrial history makes such a possibility plausible.

The chief danger to prosperity in the postwar era—or in any era, for that matter—is failure to maintain high production, which in turn leads to failure to maintain high employment and consequently failure to maintain high purchasing power. Conversely, if production is maintained, it follows that employment is supported and purchasing power and the confidence to buy are held at sufficiently high levels to assure the absorption of the products and services of industry and other business. All that, we hope, is an accepted premise.

The fear which leads to production curtailment is based on the belief that what would otherwise be produced could not be sold at a price sufficient to cover the cost of production. This possibility is, and always has been, business's greatest hazard; and it is perhaps strange that we have never done anything about it—for we have taken good care of other, lesser hazards.

Many years ago, for example, it was recognized that one of the outstanding hazards to successful manufacturing was industrial fires; and New England textile manufacturers banded together to protect each other by guaranteeing to share any fire losses suffered by one or more of the group. The ultimate outcome was the Associated Factory Mutual Fire Insurance Companies, which today insure plants in many types of industries in New England and elsewhere against not only fire, but other physical hazards as well. This great organization took the shock of a New England hurricane—which caused more mass damage to manufacturing plants than has perhaps any other catastrophe in American experience—without difficulty.

Is it not within the realm of logic, therefore, to assume that, if enough businesses of various sorts throughout the country should band themselves together and agree to share a high percentage of the losses resulting from failure to sell certain approved goods and services at or above cost, this other great hazard could be eliminated also?

Such a plan, if feasible and adopted, would of course require an even more elaborate insurance organization. Today, with our better knowledge of insurance principles, we could perhaps start off with the establishment of a stock corporation as the insurance carrier, a set-up which would protect the individual members from the embarrassment of heavy assessments in the event of widespread losses. If a large enough fund could not be raised to do that, at least enough money might be brought together by public-spirited citizens to establish a mutual corporation which would have the right to assess members only a restricted amount.

Should such a suggestion be taken seriously, many details would have to be worked out by economists, insurance men, and financiers. Provision would have to be made, for example, for surrender to the carrier of any inventory of finished product on which claims were paid, and for the eventual disposal of such inventory. Rules would have to be established as to what could and could not be considered items of cost (dividends and owners' salaries, for example, should be ruled out). An organization of management, cost, production, and marketing experts would be needed to minimize risks, just as the Associated Factory Mutual Fire Insurance Companies require a central engineering organization in Boston to reduce fire risks.

Since the carrier would not insure profits or owners' salaries, the profit motive would not be eliminated. New enterprises, whether insured or not, would be encouraged—a desirable objective in itself. Inefficient plants might be inclined to cling to life longer than would otherwise be the case, but at least they would not be injuring the market during the interim by selling below cost. Under such a plan, competition would still demand improvement in production efficiency to lower costs and selling prices; and, in consequence, technology would continue to progress and the standard of living to rise. In other words, there is nothing new about the basic principle of insurance and nothing in that principle to interfere with the system of free enterprise.

Such a proposal, advanced seriously, would no doubt strike many people as fantastic and involving too vast an undertaking to be practical. But any worth-while plan for ironing out the business cycle is bound to appear fantastic initially, and carrying it out is certain to be a huge task.

How serious are we in our desire to eliminate depressions?

Edwin D. Fowle

A scientific program to improve industrial seeing

Du Pont announces

Color Conditioning

The scientific use of paint to improve employee efficiency and morale

Here is important news about a tested scientific color plan for your entire plant, which will increase employee efficiency, improve product quality, reduce personal injuries and foster better employee-management relations.

Du Pont Color Conditioning offers you these benefits through the scientific use of paint in relation to light and vision. It is a development of Du Pont and Mr. Faber Birren (leading industrial color authority) after 16 years' study of the application of color to industrial maintenance painting. Every principle of Color Conditioning is based on scientific fact—tested and proved in typical industrial plants throughout the country.

Du Pont Color Conditioning is simple and practical. It is not interior decoration. It produces results by increasing operating efficiency. It improves lighting conditions. It reduces eyestrain and fatigue by scientifically eliminating severe visual contrasts between the work being done and the surrounding areas.

At the present time, Du Pont is devoting its available raw materials largely to either war finishes or the manufacture of exterior paints in the public interest of protecting property against deterioration. It is not too soon, however, for you to plan with us for improving your plant with Color Conditioning when materials are available. Write to E. I. du Pont de Nemours & Co. (Inc.), Finishes Division, Wilmington 98, Delaware.

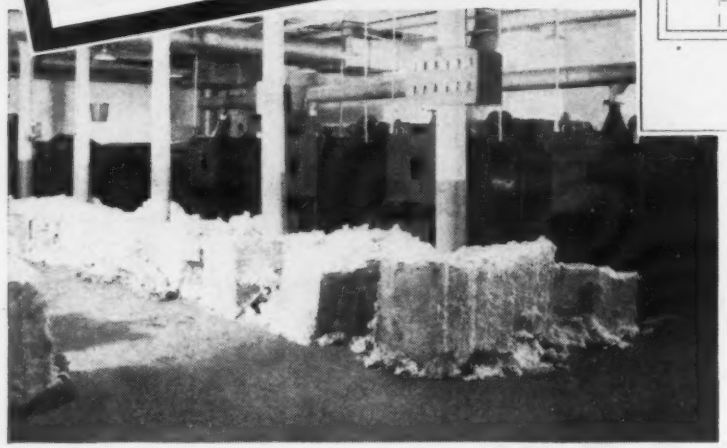
DU PONT
REG. U.S. PAT. OFF.

BETTER THINGS FOR BETTER LIVING
. . . THROUGH CHEMISTRY

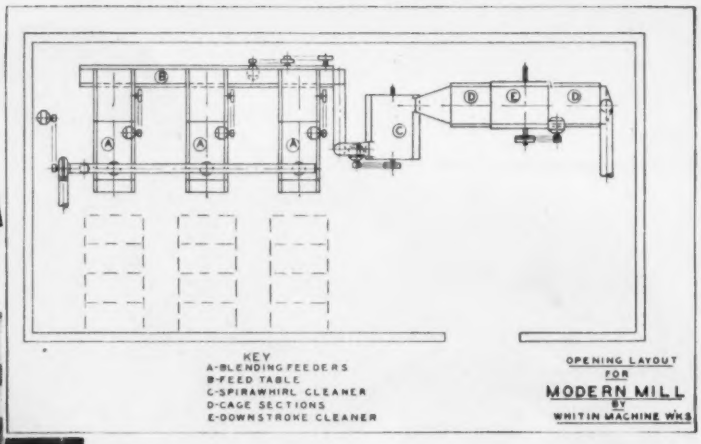
To

COTTON MILL MEN

When the time comes to turn "BLUEPRINTS" into "MILLS"



Recent mill installation of new BLENDING FEEDERS with group fan arrangement.

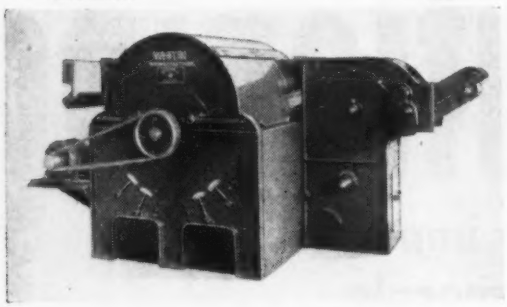


WHITIN

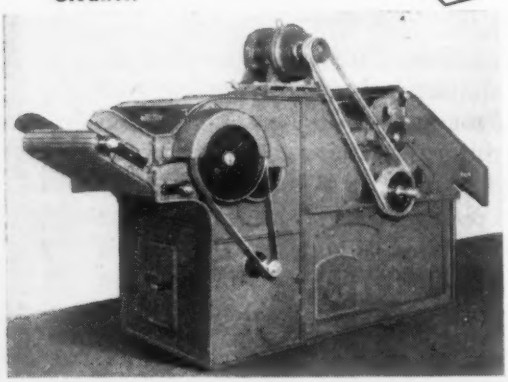
offers

Improved Equipment for OPENING, CLEANING and BLENDING

The Whitin SPIRAWHIRL Buckley Cleaner.



The Whitin DOWNSTROKE Buckley Cleaner.



The fact that careful and more efficient Opening, Cleaning, and Blending results in greatly improved manufacturing conditions throughout subsequent operations is well-known. Nevertheless, many mills are still performing these most important operations with inadequate machinery.

For that new mill, tomorrow — or that revised Opening Room layout, we recommend:

1. The Whitin Blending Feeder: (In groups of three to ten)
   - (a) Produces mathematically accurate blends.
   - (b) Effectively opens bale cotton for subsequent operations.
   - (c) Extracts an appreciable amount of loose dirt, leaf, and fly.
2. The Whitin Spirawhirl Buckley Cleaner:
   - (a) Handles all lengths of staple without fiber damage.
   - (b) Blooms and dusts the cotton with maximum efficiency.
   - (c) Produces cleaner cotton without curl or stringiness.
3. The Whitin Downstroke Buckley Cleaner:
   - (a) Exceptionally effective Opening and Cleaning.
   - (b) Particularly selective waste removal — retaining maximum of good fibers in product.
   - (c) High production with maximum efficiency.

We also build Opening equipment, specifically designed, for Staple Rayon and Blends.

WHITIN MACHINE WORKS

WHITINSVILLE, MASSACHUSETTS, U. S. A.

CHARLOTTE, N. C. ATLANTA, GA.

Every Belt a Specialist

In Allis-Chalmers' Great New V-Belt Line!

When Allis-Chalmers recommends a certain belt for a certain job, you can be sure it's the *right* belt. Because: 1) the Texrope line is *complete;* 2) Allis-Chalmers invented the multiple V-belt drive, offers engineering advice based on unparalleled experience. Both sound reasons for making Allis-Chalmers your "V-Belt Drive Headquarters."

1

HEAT-RESISTING SUPER-7, made of Buna-S synthetic rubber, has ability to withstand heat built right into it. Standard Super-7 belt, it can successfully operate in ambient temperatures up to 180 degrees F.

2

OIL-RESISTING SUPER-7 specializes in operating under fairly bad oil conditions. Neoprene, a synthetic impervious to oil, grease, other grimy liquids, is the cover for the regular Buna-S Texrope V-belt core.

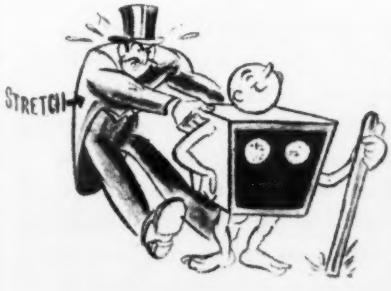
3

OIL-PROOF SUPER-7 is made of solid Neoprene, which is unaffected by most rubber-attacking liquids. It is recommended for drive installations where V-belts are virtually swimming in oil or grease.

4

STATIC-RESISTING SUPER-7 conducts static charge to machine to ground it. Static conducting element is contained throughout belt cover — can't wear off. This belt is used where explosion danger is present.

♪ *Tune in the Boston Symphony, Blue Network, every Sat. Eve.*



5

SUPER-7-STEEL employs endless cables of steel to reduce belt-stretch, provide greater horsepower. It is used where V-belt drive centers are hard to adjust, loads to be driven are extra heavy, space is limited.

A 1731

It pays to make

ALLIS-CHALMERS

your

V-BELT DRIVE HEADQUARTERS

Texrope Super-7 V-Belts result from the cooperative research of two great companies—Allis-Chalmers and B. F. Goodrich—and are sold exclusively by A-C.

This is a job for the SACO-LOWELL *Continuous* CARD STRIPPER . . . a saver of *TIME — MONEY* and *COTTON.*

The average mill, operating on middling to strict-middling cotton and producing print cloth counts will strip their cards at least twice in every eight-hour shift.

1. the **TIME LOST** to strip the cylinder and doffer will average 2%.
2. the **COTTON LOST** in cylinder strips will average 0.5% of the cotton production.
3. the stripping requires **ONE OR TWO OPERATORS** per one-hundred cards per shift.
4. the **VARIATION** in the card sliver weight, due to periodic stripping, may amount to 15% to 20%.

COMPARE!

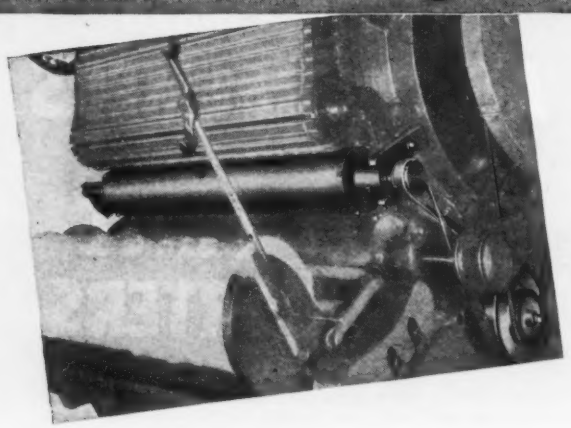
By equipping your cards with the Saco-Lowell *Continuous* Card Stripper,

1. you will **INCREASE** production as much as 2½%.
2. you will **ELIMINATE** the loss of stock now going into cylinder strips.
3. you will **RECOVER** in addition, from 1% to 2% of the fibre processed.
4. on a two-shift basis these very **TANGIBLE SAVINGS** in operating cost, improved production and cotton saved will create **AN ANNUAL RETURN** on the investment in card strippers **AS MUCH AS 75% TO 100%.**

If you are now using conventional stripping methods, either manual, vacuum or mechanical, our engineers will be glad to make a study of your local conditions and prepare an estimate showing just what the Saco-Lowell *Continuous* Card Stripper can save in your mill.

SACO-LOWELL SHOPS • BOSTON, MASS. • *Charlotte Greenville Atlanta*

SACO-LOWELL *Continuous* CARD STRIPPER



In mills equipped with the SACO-LOWELL Continuous Card Stripper, the cylinder is stripped at intervals ranging from 40 hours, when running low grade stock, to 200 hours, when running the better grades. The doffer is generally stripped every 8 hours without stopping the card. Since the surface of the cylinder is always clean with no waste packed between the wires, the sliver is generally cleaner and more uniform. Practically all of the cotton lost in the form of cylinder strips, a loss inherent in every other method of stripping, is recovered, except the extremely low percentage lost when the cylinder is stripped with the conventional brush just before grinding.

HIGHEST POWER-LOAD CAPACITY ever built into a transmission belt!

ON heavy-duty generators, compressors and other high-tension drives no belt can equal Goodyear's new COMPASS Steel Cable transmission belt in power-load capacity.

Built on the time-proved COMPASS principle — *but sinewed with endless multiple-strand steel cables in place of cotton cord* — this new belt is by far the strongest ever developed for service on "killer" drives. It withstands greater shock loads and higher tensions; has a longer flex-life than any multiple ply fabric-bodied belt — and is truly stretchless.

This means troublefree performance on present belt-eating drives. It means you can handle higher peak loads, greater overloads without constant take-ups. And it means new equipment can be set up more compactly on shorter centers. Only Goodyear can offer such a belt because the COMPASS principle is patented by Goodyear, and because Goodyear has the longest successful experience in building steel cable belts.

For complete information on this new Goodyear "first," consult the G.T.M. — Goodyear Technical Man — or write Goodyear, Akron 16, Ohio, or Los Angeles 54, California.

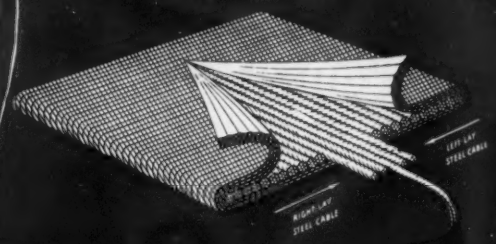
Compass—T.M. The Goodyear Tire & Rubber Company

P.S. Specify Goodyear Compass Cotton Cord belts for regular-duty drives.

FOR HOSE, BELTING, MOLDED GOODS, PACKING AND OTHER INDUSTRIAL RUBBER PRODUCTS built to the world's highest standard, phone your nearest GOODYEAR INDUSTRIAL RUBBER PRODUCTS DISTRIBUTOR.

GOODYEAR INDUSTRIAL RUBBER PRODUCTS

GTM -Specified COMPASS STEEL CABLE TRANSMISSION BELT for Heavy-Duty Drives

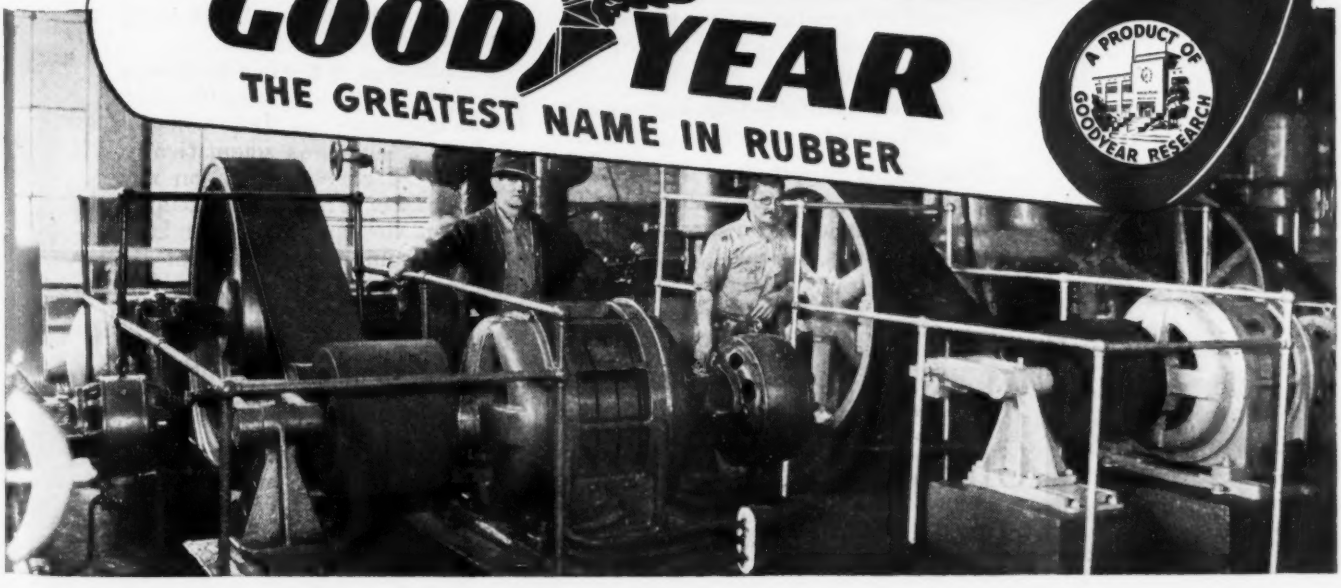


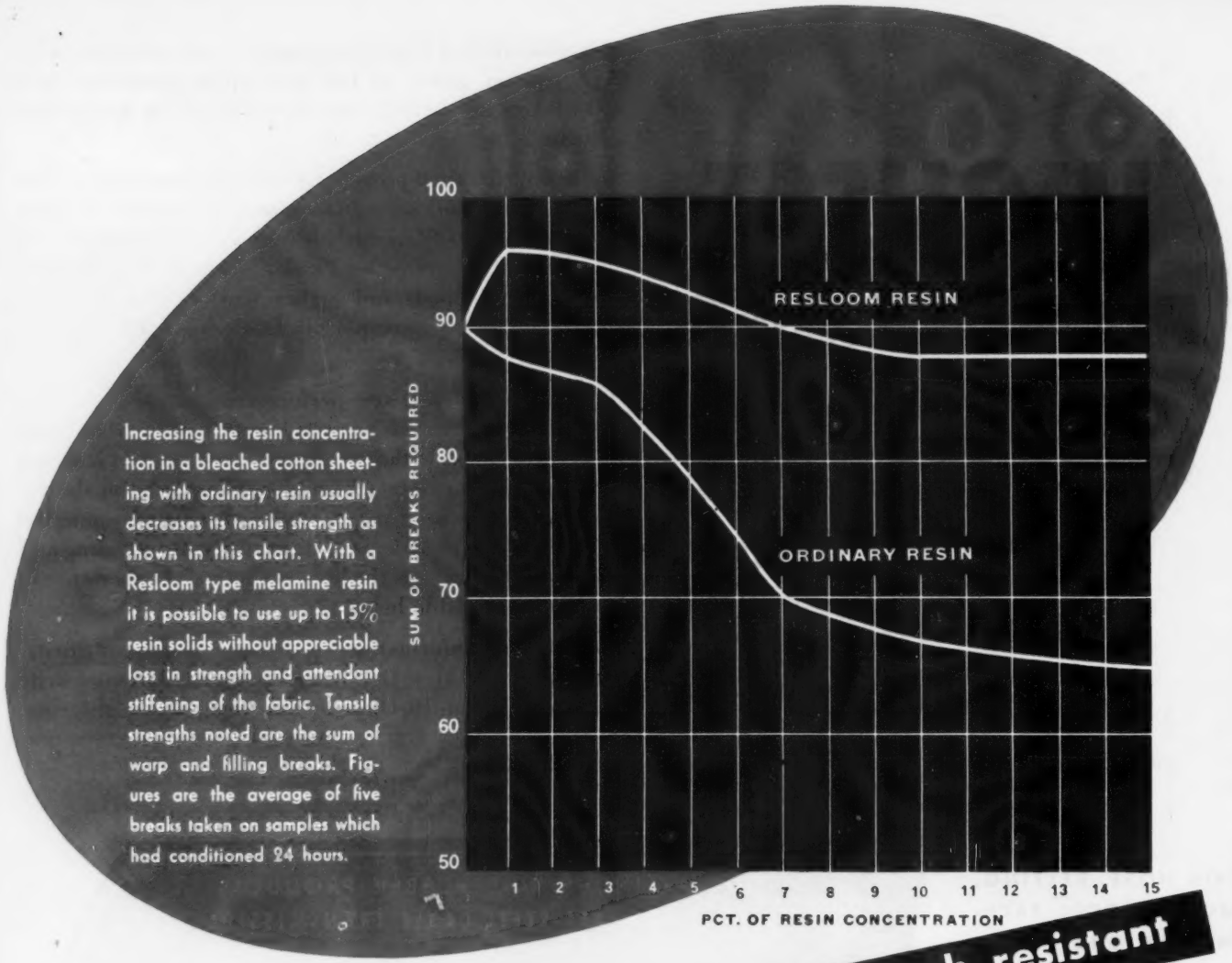
The Goodyear Compass Steel Cable belt is bodied with multi-strand airplane-type cable spiralled continuously without a splice. Cable on opposing sides of belt axis is twisted in opposite directions to insure true running.

GOODYEAR

THE GREATEST NAME IN RUBBER

A PRODUCT OF GOODYEAR RESEARCH





Increasing the resin concentration in a bleached cotton sheeting with ordinary resin usually decreases its tensile strength as shown in this chart. With a Resloom type melamine resin it is possible to use up to 15% resin solids without appreciable loss in strength and attendant stiffening of the fabric. Tensile strengths noted are the sum of warp and filling breaks. Figures are the average of five breaks taken on samples which had conditioned 24 hours.

why some cottons can be made crush resistant

Since ten to fifteen per cent of a Resloom melamine resin can be impregnated into cotton fabrics, it is now possible to obtain cottons . . .

. . . *with* far greater crush resistance, shrinkage control, and fabric stability, and . . .

. . . *without* loss of strength, increase of stiffness, or severe embrittlement.

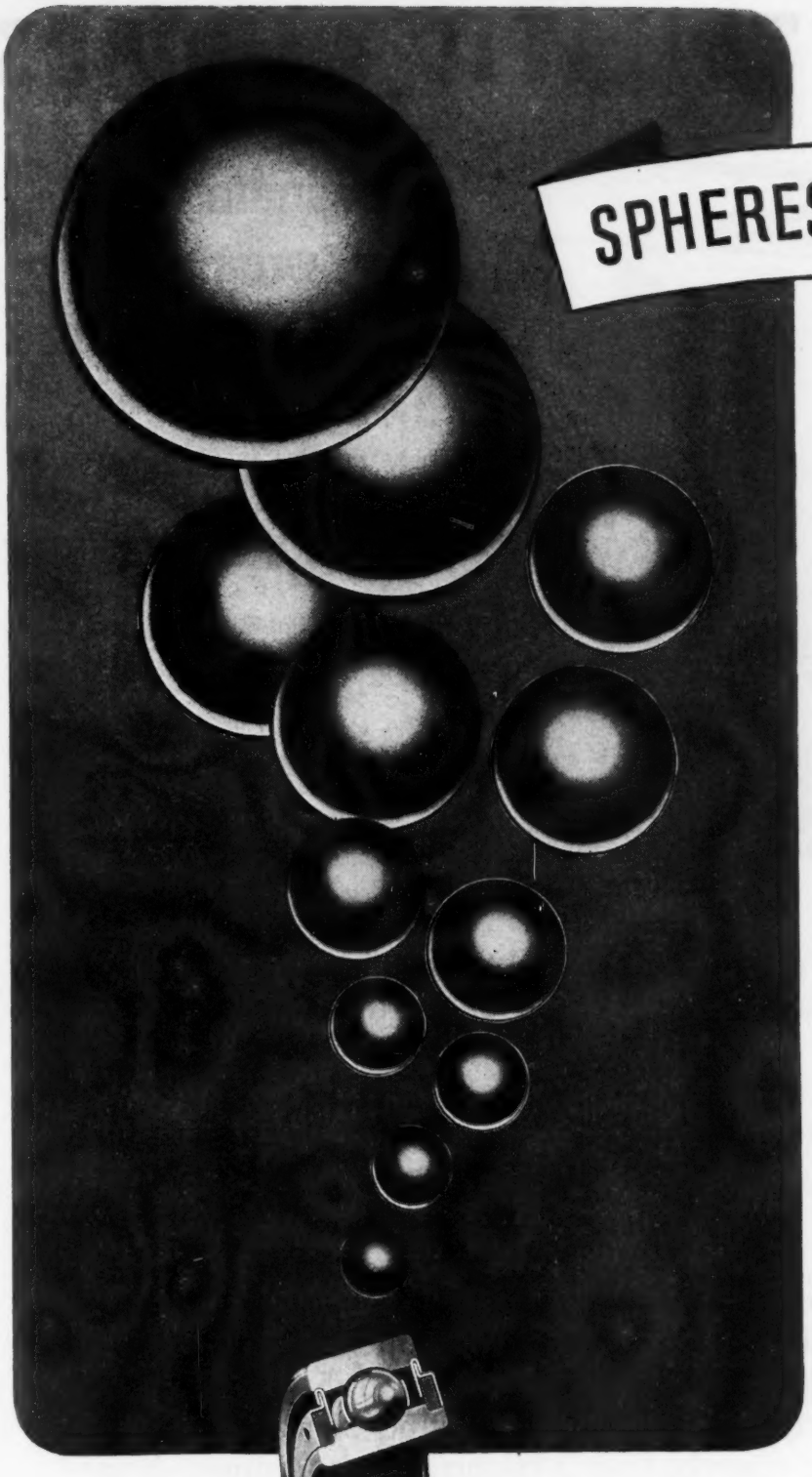
This makes important news for cotton finishers, who previously could not make their cotton sheers, sheetings, shirtings, percales, jeans, and knit goods muss resistant and shrink resistant. Resloom truly penetrates the very heart of the individual fibers.

Now it is possible to produce crease resistant cotton suitings, shirtings, sheetings, and blankets with new standards of stability, resilience, and performance.

Definite, too, is the fact that those who will profit most from the new textile chemistry are those who will apply its principles scientifically, keeping the closest watch on new developments. That means keeping an eye on Monsanto's research laboratories, from where many of the most exciting, most promising announcements have been originating. MONSANTO CHEMICAL COMPANY, Textile Technical Service, Everett Station, Boston 49, Massachusetts.

MONSANTO CHEMICALS
SERVING INDUSTRY . . . WHICH SERVES MANKIND

The Textile
SERVING INDUSTRY WHICH SERVES MANKIND



SPHERES OF influence

These spheres—these little steel balls that are the hearts of ball bearings—have as great an influence on our lives as anything promulgated at international conferences.

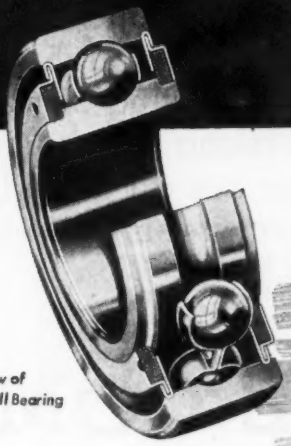
For as our civilization depends on Production . . . Production (the science of "keeping 'em rolling") depends on anti-friction bearings . . . and "Nothing Rolls Like a Ball!"

The Ball Bearing carries loads on a circle of *free rolling* steel balls, reducing friction and wear, maintaining precise location of parts and cutting maintenance—as does no other type bearing.

That's why over 300 million New Departure Ball Bearings are working in this war. That's why designers of new and better machinery are designing more ball bearings into that machinery than ever before.

We believe there is no substitute providing to so full an extent, the advantages that ball bearings give in so many applications—particularly when made with the technical experience that goes into New Departure Ball Bearings.

Send for your free copy of "Why Anti-Friction Bearings."



Cut-away view of New Departure Ball Bearing

nothing rolls like a ball

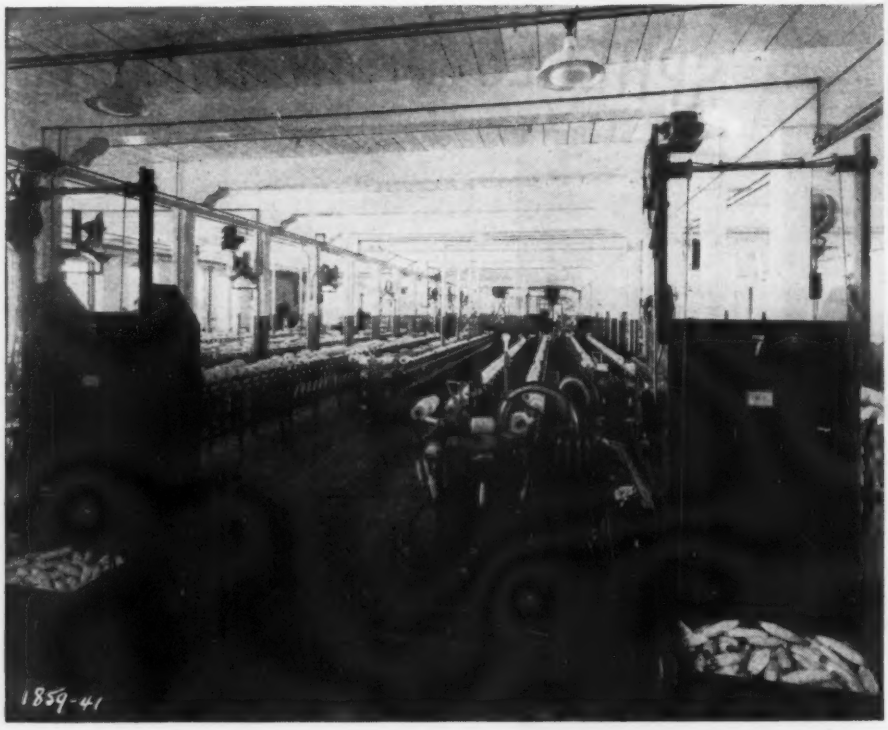
NEW DEPARTURE

BALL BEARINGS

3042

NEW DEPARTURE • DIVISION OF GENERAL MOTORS • BRISTOL, CONNECTICUT • Sales Branches: DETROIT • CHICAGO • LOS ANGELES

ABBOTT AUTOMATIC WINDERS



Winding Average hourly production per operator 900 to 1000 bobbins per hour

2-oz.	Bobbin	.....	112 lb. hr.
3-oz.	"	.....	169 " "
4-oz.	"	.....	224 " "
5-oz.	"	.....	280 " "
6-oz.	"	.....	338 " "
7-oz.	"	.....	380 " "
8-oz.	"	.....	448 " "

These production figures are being obtained in mills throughout the United States and Canada, and show the lowest direct labor cost of winding.

In addition there is a great saving in floor labor to supply the winders with spinning bobbins and remove wound cones or cheeses.

Supply bobbins are dumped by the doffers into a box at floor level. A lever is pushed and the box is lifted and dumped automatically into a big hopper. These are large enough to eliminate any other storage of yarn. There is no trucking of yarn up and down winder alleys and distributing it along the machines. It is all fed in at one point. Similarly cones are all doffed at end of winder, and move directly into warper creels or to twisters or automatic quillers.

ABBOTT MACHINE COMPANY

WILTON, N. H.

Southern Representative, Mr. L. S. Ligon, Greenville, S. C.

Get a Lubricant That

Won't Squeeze Out

of Mandrel Bearings!

ON textile printing machines, one of the toughest spots to lubricate is the Mandrel bearing pictured above.

Here terrific pressures that run as high as 800 pounds per square inch, seek to squeeze out the lubricant. High temperatures, usually encountered, add to the difficulty.

In many mills, Gargoyle Block Greases are solving this Mandrel bearing problem. For these stable Socony-Vacuum products are specifically designed for tough spots like this. They resist the squeezing action of high unit pressures, and they won't melt down and run off at high temperatures.

See your Socony-Vacuum lubrication specialist for proper application of the right Gargoyle Block Grease for your Mandrel bearings.

SOCONY-VACUUM OIL CO., INC. · Standard Oil of N. Y. Div. · White Star Div. · Lubrite Div. · Chicago Div. · White Eagle Div. · Wadhams Div. · Magnolia Petroleum Co. · General Petroleum Corporation of Calif.

CALL IN SOCONY-VACUUM FOR "CORRECT LUBRICATION"

TUNE IN "INFORMATION PLEASE"—MONDAY EVENINGS, 9:30 E.W.T.—NBC

GARGOYLE Lubricants

SOCONY-VACUUM'S 5 Steps to Lower Production Costs:

1. Lubrication Study of Your Entire Plant
2. Lubrication Schedules and Controls
3. Lubricant Storage and Handling System
4. Skilled Engineering Counsel
5. Progress Reports of Benefits Secured

A Recent Installation of Four SARGENT STOCK DRYERS
in a Progressive New England Worsted Mill

A Production Problem Solved -

• • • THIS IS THE IMPORTANT FACT!

Advantages of this modern installation

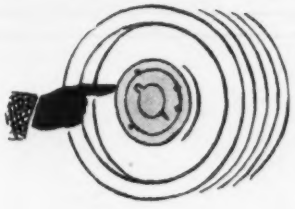
— Stock dried at lower temperatures — The use of low pressure steam
— Lower power consumption — Less floor space required
— Costly repairs and breakdowns eliminated — A better product

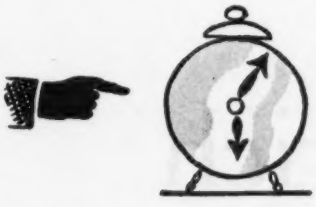
Why not let SARGENT solve your Drying troubles?

Important Defense Items by SARGENT	Machines for Smokeless Powder Plants • Machines for Synthetic Rubber Plants • Textile Machinery for the manufacture of uniforms • Machined parts for large caliber guns

C. G. SARGENT'S SONS CORPORATION

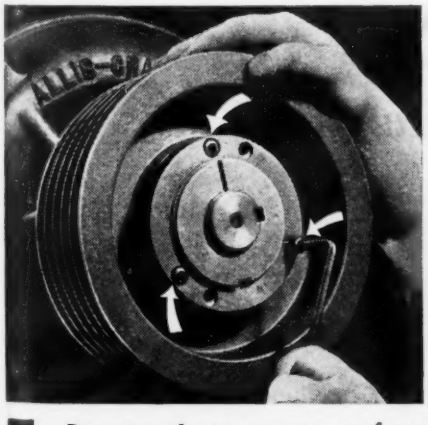
Graniteville, Massachusetts, U.S.A.

This  Saves:

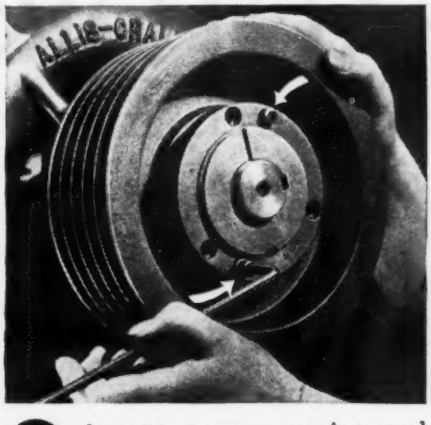


and

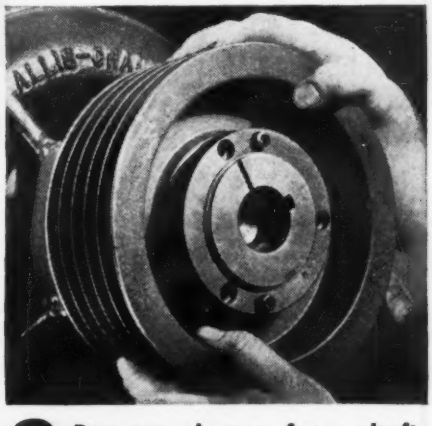
Yes, you save all three — time, money, trouble — with Allis-Chalmers' new "Magic-Grip" . . . *fastest mounting and demounting sheave on the market.* Three easy steps do it!



1 Remove three capscrews from bushing collar. A handy wrench — supplied with each sheave — is the only tool needed to remove Allis-Chalmers' new "Magic-Grip" from motor or machine shaft quickly and easily.



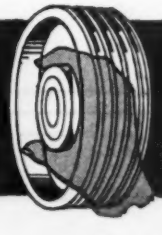
2 Insert two capscrews in tapped holes. As screws are turned, they become levers . . . automatically breaking tight grip of tapered split bushing on sheave and shaft. Entire unit is then ready for removal.



3 Remove sheave from shaft. Requires no mallet, no prying, no bulging muscles. You just slide the sheave off . . . smoothly, quickly. *It costs nothing extra!* Send for B6310. Allis-Chalmers, Milwaukee 1, Wis.

A 1760

Allis-Chalmers Texrope

"MAGIC-GRIP"  **SHEAVES**

L. F. Dommerich & Company

Executive and General Offices

271 MADISON AVENUE
NEW YORK, N. Y.

Telephone: AShland 4-8650

FACTORS

For Manufacturers and Merchants

Inquiries as to our services solicited

●

ESTABLISHED 1840

SANDOZ PRESENTS *The color achievement of the month*

Victorian White by Juilliard

Restraint and elegance characterize "Victorian White", a high fashion shade featured this Spring by America's leading designers.

Sandoz congratulates Juilliard on the fine styling and soft luxury of this "Master Fabric", well adapted to the subtle nuances of quality colors.

As a skilled composer creates through tones the richness of an interwoven harmony, so Sandoz technicians work with the components of dyes, inventing, combining, experimenting.

Sandoz Research has produced, for instance, such distinctive colors as Brilliant Alizarine Light Violet FFR (Pat.); other exceptional dyes include Brilliant Alizarine Milling Blues BL, G and SL which combine fastness-to-light and fulling to unusual degree.

Also Sandoz-developed is Cerol TGI, a combined waterproofing and mildew-proofing agent; its great stability prevents delays in reprocessing; non-toxic, it is suitable for garments worn next to the skin.

Sandoz Research is ready to assist you in obtaining a wide range of acid, chrome and direct dyes as well as auxiliary chemicals for all natural and synthetic fibres. Sandoz application laboratories are maintained in New York, Boston, Philadelphia, Charlotte, Los Angeles, Toronto, with stocks in those cities. Other Sandoz branches: in Chicago, Paterson and Providence.

Watch for next month's Color Achievement, featuring another Textile Leader among Sandoz' customers.

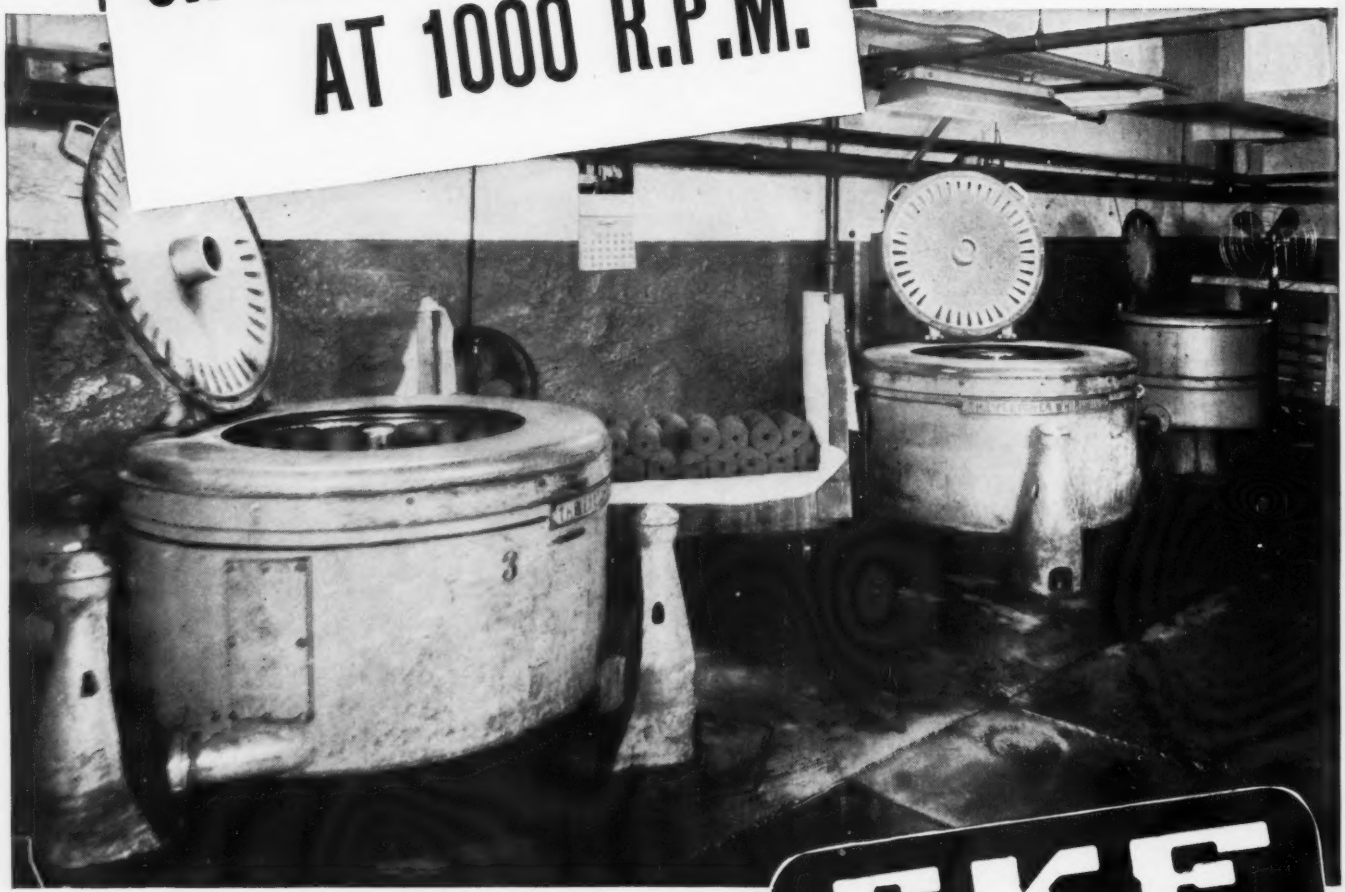
SANDOZ CHEMICAL WORKS, INC., 61 VAN DAM STREET, NEW YORK 13, N.Y.

SANDOZ *thinks ahead with textiles*

S SANDOZ

1945

ON 48" EXTRACTORS AT 1000 R.P.M.



● *Built by* FLETCHER WORKS, INC.

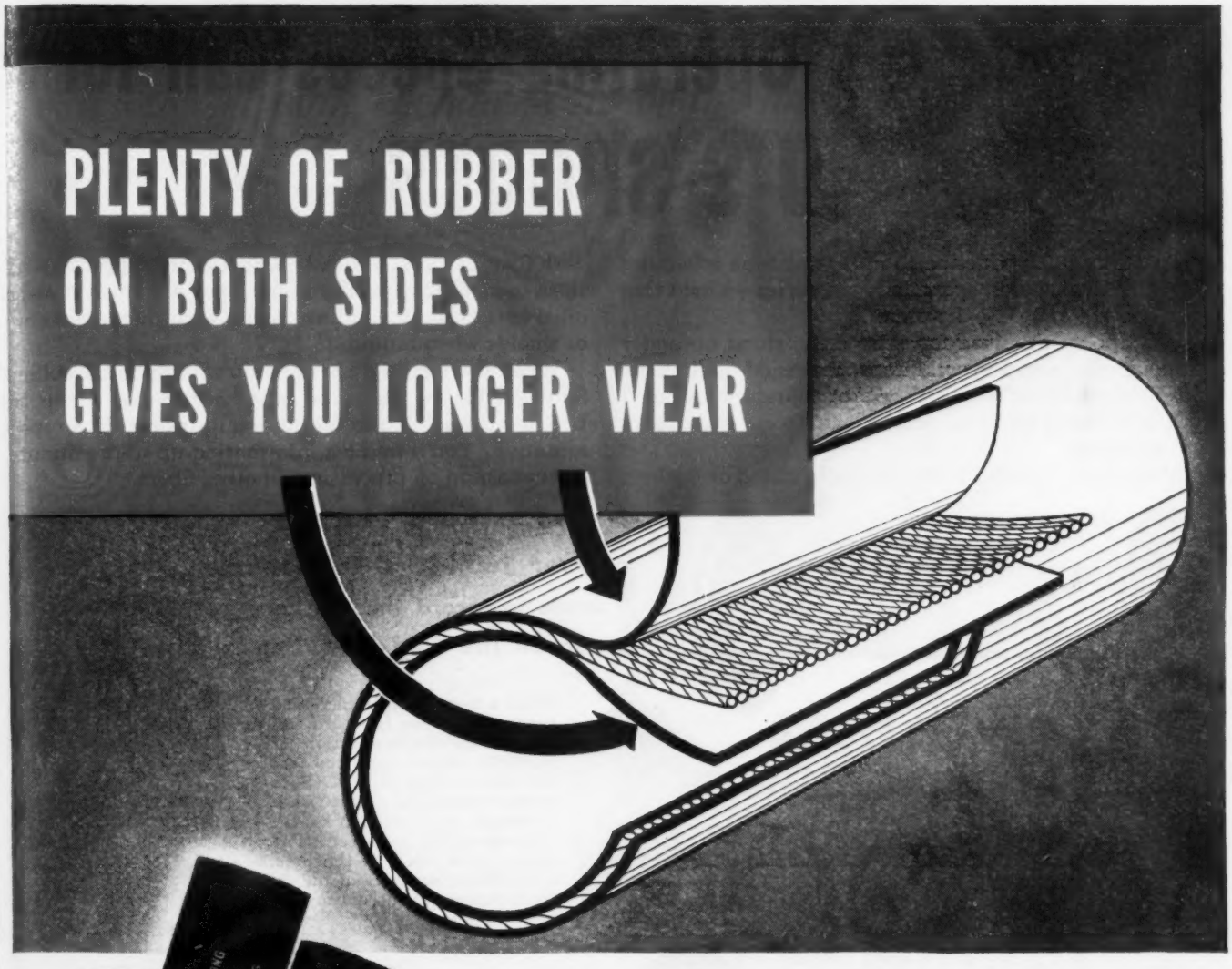
"Naturally, we use SKF Ball Bearings on these 48" High Speed Whirlwind Extractors operating at a speed of 1000 r.p.m.," say Fletcher Works, Inc. And why not? SKF's can take it, even if this speed is considerably higher than the normal speed of 48" extractors. Absorbing radial and thrust loads, SKF's carry the rugged baskets easily day in, week out, month in, year out—*for years!* An outstanding contribution to helping these extractors dry packages of yarn with a moisture content after extracting of approximately 40%. The really important jobs in the Textile Industry are done with SKF-equipped machines—*always.*

5757

SKF INDUSTRIES, INC., PHILA. 34, PA.

SKF
BALL AND ROLLER BEARINGS

PLENTY OF RUBBER ON BOTH SIDES GIVES YOU LONGER WEAR



ARMSTRONG IS HEADQUARTERS FOR

Roll Coverings, Long Draft Aprons, Roll Shop Equipment and Supplies, Loom Clutch Facings, Friction Let-off Strips, Brake and Clutch Inserts, Temple Rolls, Loom Bumpers, Preformed Cork Cones, Friction Drive Wheels, Spindle Washers, Winder Spindle Head Covers

FOR more than three years many thousands of Accotex Aprons have been running with little evidence of wear. The extra-long life of these aprons is due to a unique construction developed by Armstrong. Equal layers of rubber provide the necessary wearing thickness on *both inside and outside* surfaces. In addition, the synthetic rubber used is non-oxidizing and not affected by oil.

Other important advantages of Accotex Aprons include . . .

NO STRETCHING: The sturdy interliner in Accotex Aprons eliminates loss of efficiency due to stretching during operation.

UNIFORMITY: All Accotex Aprons have the same composition throughout, and dimensions of every size are accurate.

CLEAN-RUNNING WORK: Accotex Aprons do not crack or scuff, assuring cleaner running work.

REDUCED LAPPING: Accotex Aprons are unaffected by changes in either temperature or humidity. Lapping is held to a minimum.

GOOD FRICTION: The efficient "grip" of Accotex Aprons keeps slippage to a minimum.

NO SEAMS: The seamless construction of Accotex Aprons can't break open and shorten service life.

Taken together, these advantages explain why Accotex Aprons help you spin better yarn and stay at peak production. For samples of Accotex Aprons, write Armstrong Cork Co., Textile Products Dept., 8303 Arch Street, Lancaster, Pennsylvania.

ARMSTRONG'S ACCOTEX APRONS

CORK COTS • ACCOTEX COTS

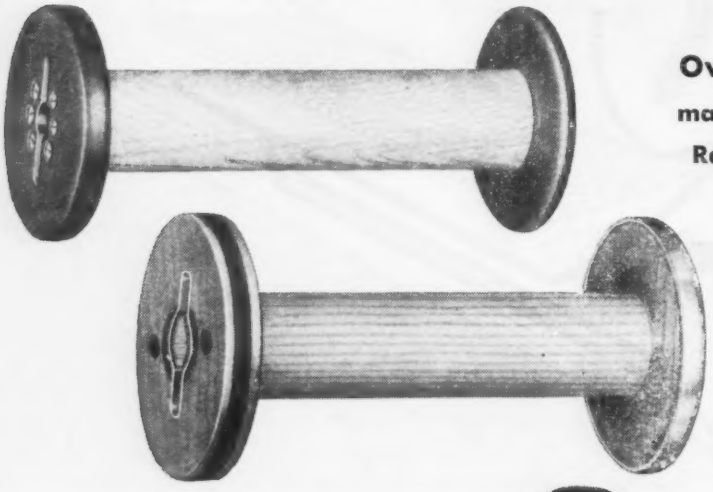
Stepped-up Operating Speeds call for U S SPOOLS

Speeding up production to meet war-time schedules puts an extra load on operating accessories – a load that soon shows up the "weak sisters".

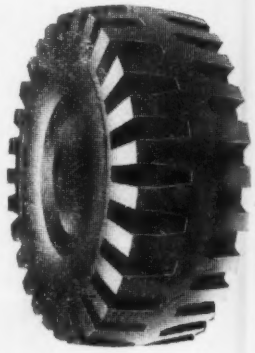
U S Spools, *designed* for extra duty, stand up under the toughest operating conditions. Precision-built to the closest possible tolerances, they are accurately balanced for true-running performance, reducing wear on bolsters and spindles.

Made from selected northern stock, nailed or bushed, with fiber or wood heads, U S Spools are supplied in all sizes, to meet any specifications. They are finished plain, oiled or lacquered, and are fitted with metal bushings or shields when required.

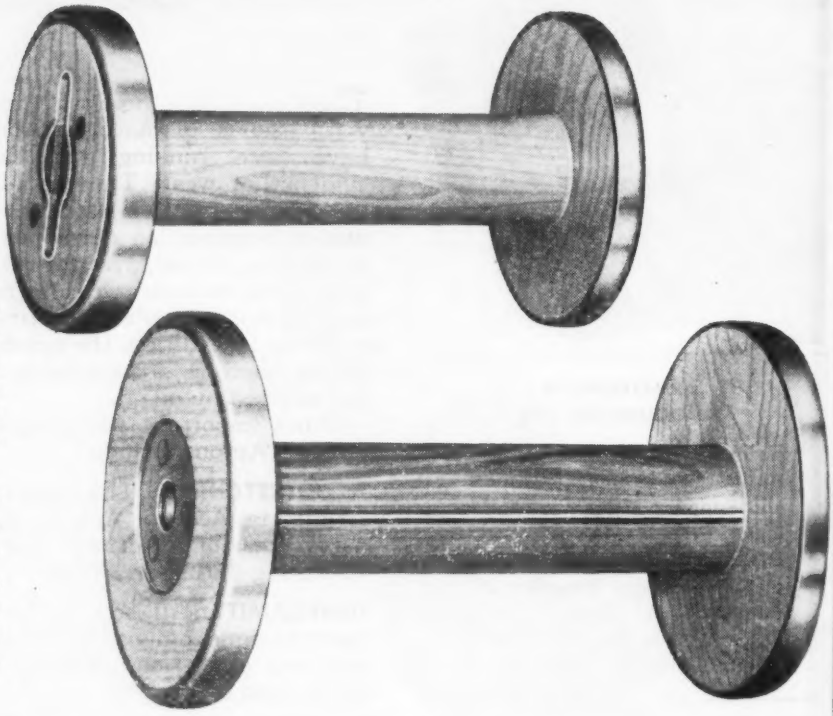
When you are ready to re-equip with Spools, Bobbins, Shuttles, Cones, Rolls, or other accessories made by U S, it will pay you to talk to a mill-trained U S representative. You'll find his information up-to-the-minute, on rayon, and on processing all other fibers.



Over 500,000 U S Spools made in record time to boost Rayon Tire Cord production



When a tremendously increased yardage of rayon tire cord was needed for the protection of synthetic rubber tires, the textile industry called on U S to produce hundreds of thousands of spools in a fraction of the time normally required. The orders were filled on schedule, an excellent example of the resourcefulness of the entire U S organization.



Four Reasons

Why It Pays to Consult U S

MILL-WISE REPRESENTATIVES U S representatives cover every field of textile production, and can offer thoroughly experienced advice on the use of U S products in any process.

AMPLE PLANT CAPACITY Five manufacturing plants, in North and South locations closely keyed to textile production areas, are fully equipped to handle any size orders.

CONTROLLED RAW MATERIAL Extensive U S owned timber properties, including fine northern hardwood stands, allow close control of raw material selection and processing from the source.

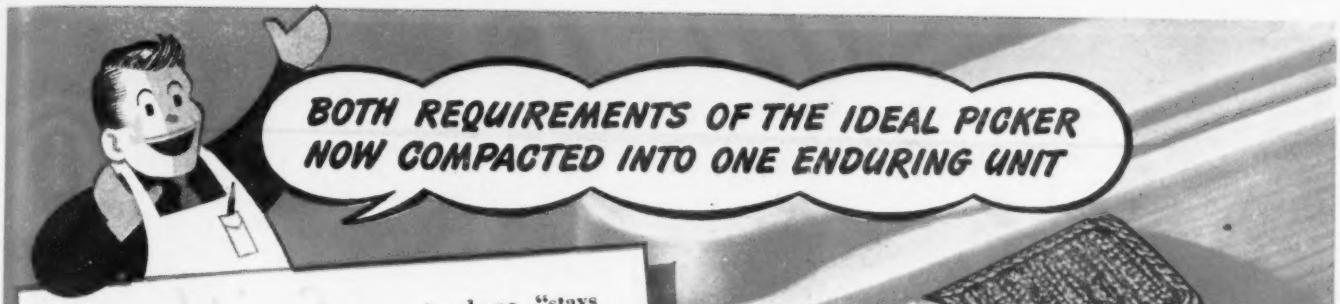
PRECISION STANDARDS U S has cooperated with textile machinery manufacturers for 86 years – can meet the closest possible limits of tolerance in all tests for dimensions, weight, and balance.

U S BOBBIN & SHUTTLE CO.

PROVIDENCE, R. I.
GREENVILLE, S. C.
CHICAGO AGENT:
Albert R. Breen,
80 E. Jackson Blvd.

LAWRENCE, MASS.
CANADIAN AGENT:
W. J. Westaway
Montreal, Que. — Hamilton, Ont.

JOHNSON CITY, TENN.
CHARLOTTE, N. C.
ALABAMA AGENT:
Young & Vann Supply Co.
Birmingham



There's now a picker that keeps its shape, "stays put," and reduces maintenance, so that picker costs are cut as much as 50%. Even on high speed looms. It is the Dayton Thorobred Loop Picker.

It is molded, made twice as strong as others (except Dayton's DeLuxe Picker) and combines exceptional long-life with ideal picker function.

The loop holds. Its tapered hole with rounded corners fits tightly, and has no expansion; so Dayton's don't "work up." They maintain throughout *many months* of service the correct position for perfect shuttle throw.

The face-block has precisely the proper cushion, resilience, and durability; is anchored in, and vulcanized to stay. It can't buckle or distort. And, the face is flared, and shaped to guide the shuttle into the body of the picker. Shuttles get ideal throw, without burning, without "bounce."

So read *all* the advantages that thousands are getting today with Dayton Thorobred Loop Pickers.

MOLDING ELIMINATES ROUGHNESS

After exhaustive tests, a finer fabric 2½ times stronger than other materials was found. Under laboratory control, this fabric is molded smoothly, and shaped with rounded corners that permit weaving of the finest filaments without trouble.

UNIQUE DESIGN INSURES LONGER SERVICE

The Dayton has a forward tilt that *keeps* it aligned to give only horizontal blows. It withstands beatings. Replacements, if any, are rare.

EASIER, FASTER TO INSTALL

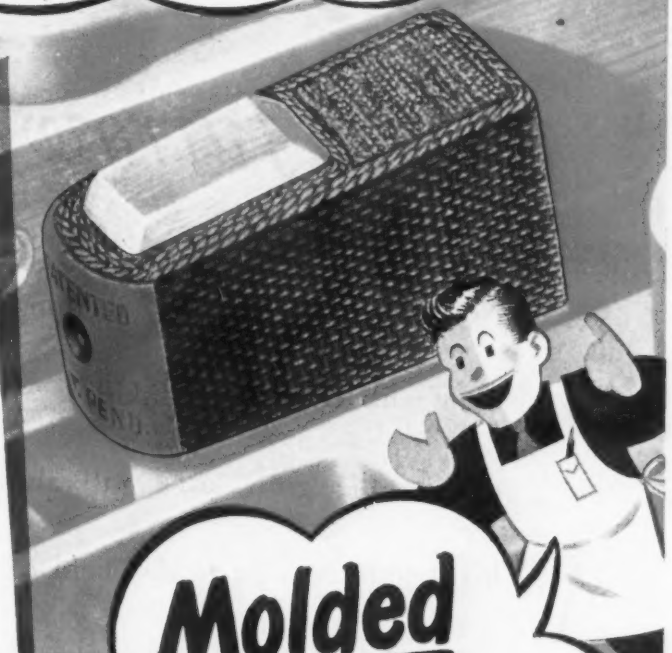
The tapered hole guides installation. They're absolutely uniform. And, made without rivets, Daytons have no "lefts" and "rights." Fewer are needed in stock.

BETTER PRODUCTION AND GREATER OPERATING ECONOMY ASSURED

Looms can be boxed the same at all times. Jerked-in fillings are reduced to a minimum. You, too, will save at least 50% of your picker expense, with Dayton Thorobred Loop Pickers. Get *all* the advantages of Daytons years of specialized experience in making many accessories, all technically more excellent, for the Textile Industry. Write for complete information, plan for a trial installation, today.

THE DAYTON RUBBER MFG. COMPANY
DAYTON 1, OHIO WAYNESVILLE, N. C.
Main Sales Office: Woodside Bldg., Greenville, S. C.

KEEP ON BUYING WAR BONDS



Molded Loop Pickers Cut Picker Costs 50%

TRY THESE DAYTON LUG STRAPS TOO

They're stronger beyond every requirement, with excellent cushion to protect other parts. Their resilience is technically accurate. They need no adjustment. They're very durable, and low priced.

Pickers by

Dayton Rubber

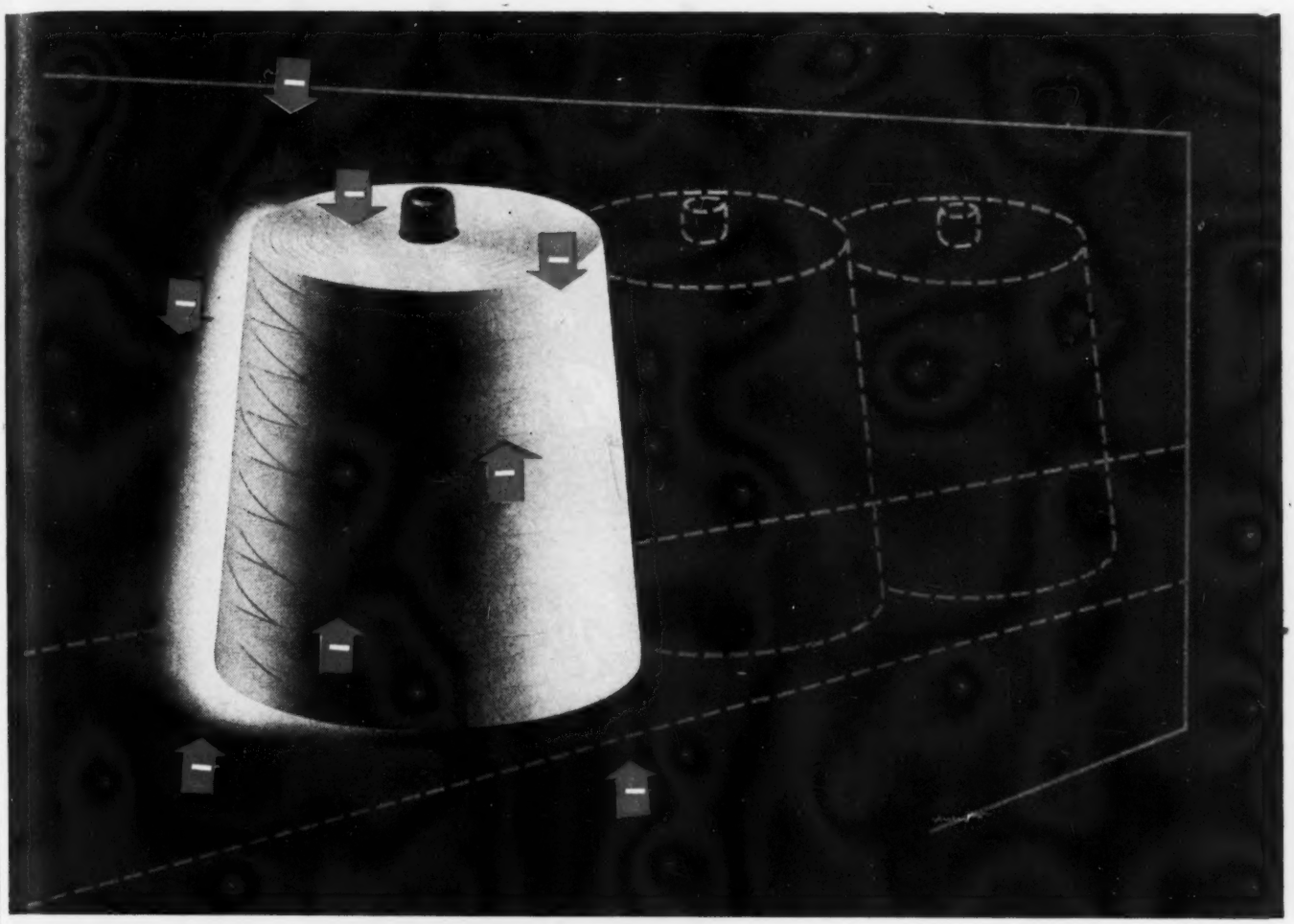
REG. TRADE MARK THE DAYTON RUBBER MFG. CO.

The Mark of Technical Excellence in Synthetic Rubber

One *furrow* . . . one *faith*

No man can be master of all things. He may do many things well . . . even with considerable skill. ☆ But the true craftsman, the gifted creator, the great artist will always be found to have concentrated his genius in a *particular* field of endeavor. ☆ Back of any lasting work of literature or scientific development . . . behind the painted masterpiece or great industrial accomplishment, there is invariably singleness of purpose . . . unyielding devotion to one goal. ☆ In art and industry . . . in the creative loneliness of vision . . . *dedication to a single ideal is the road to achievement.* ☆ And when, in addition, that ideal is made into a dynamic, vibrant reality by men of energy and ability . . . the result is human progress. ☆ For more than 40 years, Dr. Willis H. Carrier and his associates have devoted themselves to the art and science of air conditioning and refrigeration.

CARRIER CORPORATION ☆ SYRACUSE, NEW YORK



we give tire cord an electronic "permanent wave"

When you solve one problem in rayon production, it seems you just create another for yourself.

For instance, to speed up tire output for the Army and Air Forces, a tire manufacturer wanted big cones of Tyron cord, bigger than anything ever attempted before. We tackled it and came up with an 18 pound cone—the largest ever!

But such a big, hard twist cone could not be twist-set by ordinary methods of applying heat and moisture. Industrial's technicians solved the problem by using the power of harnessed electrons.

To our knowledge this is the first application of its kind in the textile industry. It's simple now that we know how. We built electronic ovens. A belt carries the big cones in at one end. On goes the juice. Out they come—huge cones of Tyron—twist-set for keeps, and uniform throughout.

So new and revolutionary is this process that we've just gotten around to naming it. It's called *LEKTROSET. You'll be hearing lots more about it—and about the other strides Industrial has been making to speed up our war production and increase our efficiency.

It's called *LEKTROSET Remember it!

Industrial RAYON CORPORATION
CLEVELAND, OHIO
NEW YORK OFFICE: 500 FIFTH AVE.

MAKERS OF

*Span-lo RAYON YARN AND CLOTH and *TYRON YARN, CORD AND FABRIC

*Reg. U.S. Pat. Off.

for faster, easier stripping use

YOUR carder will like TUFFER Hand Cards . . . they bite smoothly and evenly . . . clean the rolls quickly with firm, yet flexible, teeth!

TUFFER Hand Cards, strong and durable, give greater stripping efficiency with less effort and arm strain. It all adds up to minimum time lost for stripping . . . and greater production!

HOWARD'S SPECIAL HAND STRIPPING CARD

Pressed steel handle, with wooden grip, fingertip balance control, reinforced steel base. Foundation of highest quality tuff special or leather. Uniform tacking insures correct tension. Made of three-ply indestructible wood for strength and light weight.

MIDGLEY'S IMPROVED HAND STRIPPING CARD

Indestructible backs and handles prevent splitting. Steel clamps protect edges of the card and hold them securely to the back. Teeth formed as a part of the clamps, giving a holding point every quarter inch. The card is held as if in a vise . . . prevents stretching. Construction reduces to a minimum the "breaking out" or "pulling back" of the wire.

Whether it's Midgley's Improved or Howard's Special Hand Stripping Card, you're using the best when you use TUFFER Hand Cards.

Card Clothing for Woolen, Worsted, Cotton, Asbestos, and Silk Cards—Napper Clothing, Brush Clothing, Strickles, Emery Fillets Top Flats Recovered and extra sets loaned at all plants—Lickerins and Garnett Cylinders from 4 to 30 inches and Metallic Card Breasts Rewired at Southern Plant—Midgley Patented Hand Stripping Cards, Howard's Special Hand Stripping Cards and Inserted-Eye and Regular Wire Heddles.

TUFFER
CARD CLOTHING

HOWARD BROS. MFG. CO.

WORCESTER, MASSACHUSETTS

Southern Plants: Atlanta, Ga., Gastonia, N. C. **Branch Offices:** Philadelphia, Austin **Canadian Agents:** Colwool Accessories, Ltd., Toronto 2

For speeds around 60,000 rpm, Micarta retainers have many advantages. One bearing in a high speed grinder was inspected after 18 billion revolutions, okayed and put back. On a similar grinder, tolerances of 0.00005 inch are still maintained after 15 months with the same bearings. Micarta retainers have permitted spindle speed increases that lupped production from 17 to 65 pieces per hour.

IT TAKES MICARTA TO

Steer Steel Balls at Bullet Speed

. . . AND WORK TO ± 0.00005 INCH!

Precision requirements, greater speeds and loads have taken ball-bearing retainers from sheet steel stampings . . . to machined brass . . . to Micarta.

Tolerances of the balls themselves are made to 0.000005 inch. And recent research has shown that, at high speeds, accuracy is important in the retainers as well.

This accuracy was easy with **MICARTA**, in automatic precision tool machines.

MICARTA is light in weight . . . has great mechanical strength and ample rigidity with greater shock-absorbing power . . . is less subject to vibration and fatigue, operates more quietly.

MICARTA aids lubrication, since it "wets" better and lubricants adhere to it.

MICARTA's rare combination of physical properties has proved its right to many new jobs. If you need lighter weight, high strength and resistance to wear, write for your copy of the new Micarta Data Book B-3148-A. Write to Westinghouse Electric & Mfg. Co., P. O. Box 868, Pittsburgh 30, Pa.

J-06362

Quiet operation, strength and power to absorb shocks make Micarta best for this stoker gear and cam.

25 to 50% lower power cost—20 to 40 times longer wear than metal—no lubricating expense, with Micarta Steel Mill Roll Neck Bearings.

Resilience, smooth surfaces, resistance to mild acids and long life recommend Micarta Spinning Buckets for the Rayon Industry.

WESTINGHOUSE

Micarta

THE INDUSTRIAL PLASTIC

SAVE 30% ON YOUR BELT LACING COSTS

The Timken Roller Bearing Co. of Canton, Ohio, has effected a saving of about 30% in consumption of belt hooks by using Clipper Belt Hooks, Clipper Lubrihide Pins and Clipper Speed Lacers.

You, too, can make worth-while savings by using ALL THREE Clipper products.

Remember, only Clipper Belt Hooks are packed with the long wearing **Lubrihide Pins.**

The **Clipper No. 9 Portable Lacer** develops pressures up to 16 tons. With such pressure, hook legs can be embedded flush with the surface of any kind of belt and points clinched.

The scientific action of the jaws forms a perfect line of well rounded loops permitting the use of maximum diameter **Lubrihide Pin,** also providing equal distribution of pulling strain on every hook. A belt joint so made will outlast by two to three times one made with an old-style portable lacer.

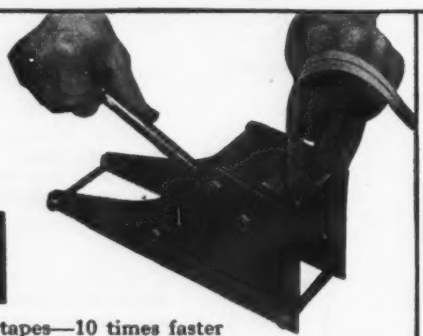
Clipper No. 9 Portable laces belts up to 6 inches wide in one quick, easy operation.

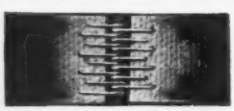
Scientific action of Jaws forms

a perfect loop for connecting pins.

We suggest that you check YOUR belt lacing situation. Send for folder describing the powerful Clipper No. 9 Portable Lacer and other Clipper products. Phone your Mill Supply Jobber for a demonstration!

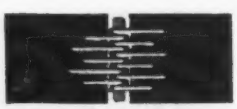
CLIPPER SPINDLE TAPE LACING EQUIPMENT





You can lace spindle tapes—10 times faster than stitching — with Clipper No. 25 Spindle Tape Hooks. The spinning frame is shut down only long enough to place the new tape on the pulleys and join the ends with the connecting pin — a short, easy operation. Tapes run true—last longer—run smoother—require less tension. VIBRATION is ELIMINATED.

CLIPPER CONDENSER TAPE LACING EQUIPMENT



Condenser tapes are laced with Clipper No. 25 Condenser Tape Hooks. The joint is as flexible as the tape itself. Clipper Laced Condenser Tapes can be installed in a fraction of the time required for endless tapes. Tape may be purchased in the roll at considerable saving, and cut to length. WRITE FOR INFORMATION.

CLIPPER BELT LACER COMPANY GRAND RAPIDS, MICHIGAN, U. S. A.

O W I Photo by Palmer, in an Allegheny Ludlum Plant

Final Examination

BEFORE STAINLESS GETS ITS WINGS

Have you a copy of the Allegheny Ludlum "Fabrication Blue Sheet"?

Contains a wealth of reliable, certified data, not only on the machining of Allegheny Metal, but on the best methods employed in other fabrication operations on stainless steel—forming, welding, finishing, etc. Write for your copy—you'll find it highly useful and complete.

ADDRESS DEPT. TW-32

A GREAT DEAL of costly processing is done on Allegheny Stainless Steel, to secure the physical characteristics and surface finish required for the particular war job it is to perform. But one day all the hot and cold rolling, heat treating, and pickling, grinding or polishing is completed, and bright sheets of Allegheny Metal lie on protective layers of heavy paper, ready for final inspection and shipment to the war plants.

They're *right,* those sheets—flawless of surface and true to desired specifications. Only one essential remains: that they be used as carefully as they were produced—fabricated with an absolute minimum of rejects, spoilage, undue scrap, or waste in any form. ● Call on us for technical and fabricating data, or the services of our Technical Staff.

Allegheny Ludlum
STEEL CORPORATION
BRACKENRIDGE, PENNSYLVANIA

Branch Offices in Principal Cities . . . Allegheny Stainless also handled by all Joseph T. Ryerson & Son, Inc. Warehouses

A-9771 . . . W & D

IN the infancy of the textile industry, carding was done by hand and the card clothing was the main machine element, being an integral part of the whole.

Today the card is a separate machine — far bigger and far more costly than its clothing — and for this reason, the latter is often regarded as accessory equipment. However, in terms of results, the clothing is *still* the main element, for without it the machine is useless.

Likewise, the efficiency of a carding machine is in direct proportion to the efficiency of its clothing. So it behooves every spinner to keep his card clothing in first-class condition.

Ashworth Card Surveys, at regular intervals, are a scientific and economical means of doing this. They are made free of charge by practical card men.

Ask for further details.

ASHWORTH BROS., INC.,• Woolen Division,
AMERICAN CARD CLOTHING CO.
Fall River*†‡ Worcester*‡ Philadelphia*†‡ Atlanta†‡
Greenville†‡ Charlotte†‡ Dallas†‡ (Textile Sply. Co.)

*Factory †Repair Shop ‡Distributing Point

PRODUCTS AND SERVICES

CARD CLOTHING FOR COTTON, WOOL, WORSTED, SILK, RAYON AND ASBESTOS CARDS AND FOR ALL TYPES OF NAPPING MACHINERY • BRUSHER CLOTHING AND CARD CLOTHING FOR SPECIAL PURPOSES • LICKERIN WIRE AND GARNET WIRE • SOLE DISTRIBUTORS FOR PLATT'S METALLIC WIRE • LICKERINS AND TOP FLATS RECLOTHED . . . . . .

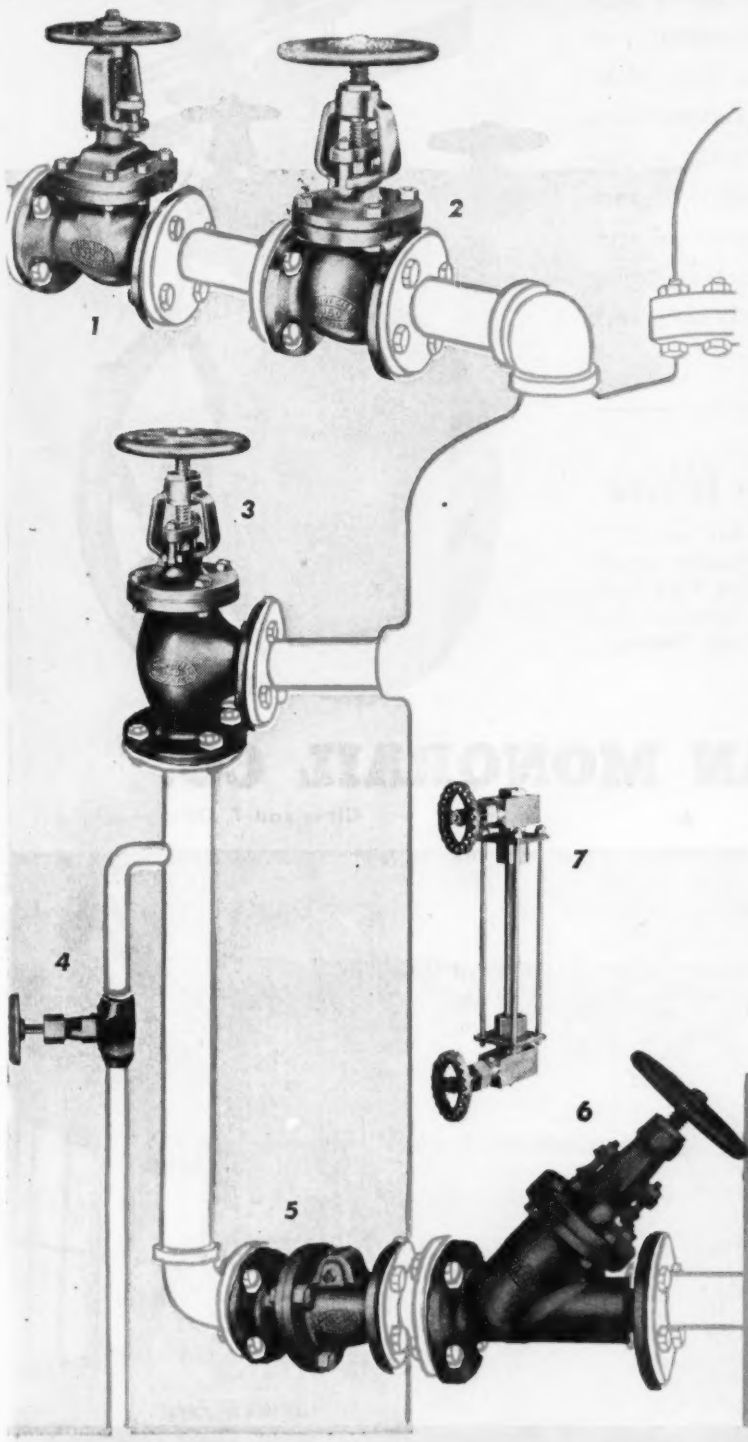
Ashworth PIONEERS IN CARD CLOTHING

3 FACTORIES • • • 6 REPAIR SHOPS • • • 7 DISTRIBUTING POINTS

"Hot" Acids AND Alkalies

HANDLED LIKE WATER

BY ALOYCO STAINLESS STEEL VALVES



When you use Aloyco Stainless Steel Valves you can route corrosive fluids with equal flexibility and almost as harmlessly as though they were steam or water. You can avoid the probability of breakage under impact or temperature changes, reduce maintenance and improve flow control. Aloyco offers you the choice of not only the usual Gate valves (See No. 1 in illustration) but also Globe (2), Angle (3), Needle (4), Swing Check (5), Globe Check, Tank, "Y" (6) and other types of valves as well as a full line of fittings, including gauge glass fittings (7).

Since Aloyco Valves are made of solid stainless steel even to the bonnet bolting, they eliminate any possibility of contamination, last longer, open and close effortlessly. Easily taken apart and re-assembled, they can be quickly cleaned. Their better designs, closer tolerances and smoother finishes result from concentration of **all** of this Company's activities in the manufacture of stainless steel valves and fittings.

ALOYCO VALVES are now available for new installations under high priorities and for maintenance and repairs under M.R.O. regulations.

ALLOYS AVAILABLE: Chrome-Nickel 18-8S, 18-8 SMo, Aloyco 20, and the higher Chrome-Nickel Series, Worthite, Hastelloy, Monel, Pure Nickel and others.

ALOYCO

Stainless Steel

VALVES and FITTINGS

GATE VALVES • GLOBE VALVES
Y VALVES • CHECK VALVES
LEVER THROTTLE GATE VALVES
TANK VALVES • SCREWED FITTINGS •
FLANGED FITTINGS
GAUGE GLASS FITTINGS

Alloy Steel Products Company, Inc., 1304 West Elizabeth Avenue, Linden, N. J.

AMERICAN MONORAIL Automatic MONITOR CLEANER

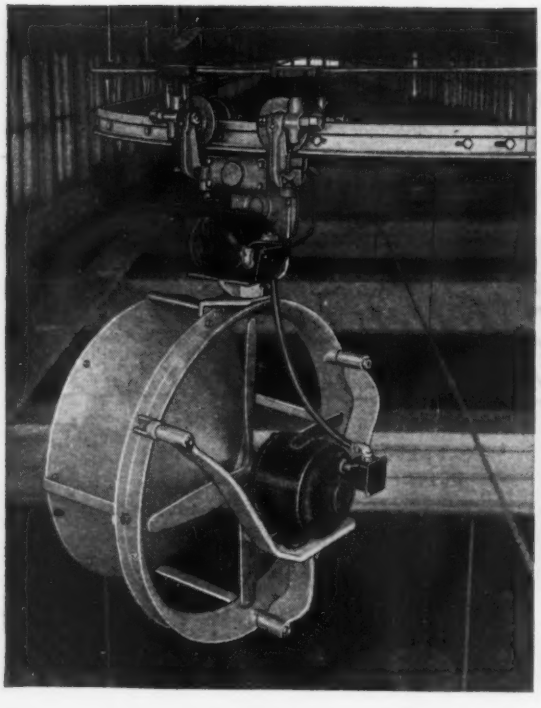
Monitor cleaning is now done automatically by a high velocity fan unit that travels around a MonoRail loop within the monitor. At regular intervals, a blast of air is diffused in all directions, preventing lint accumulation within the monitor. Other advantages that result in considerable savings are—it improves the quality of yarn processed beneath monitor—it eliminates danger of accident with hand cleaners—it assures full production during cleaning—it tends to distribute humidity evenly over work below—in short it shows an annual saving in cleaning cost—plus an increase in production due to continuous operation of machines below.

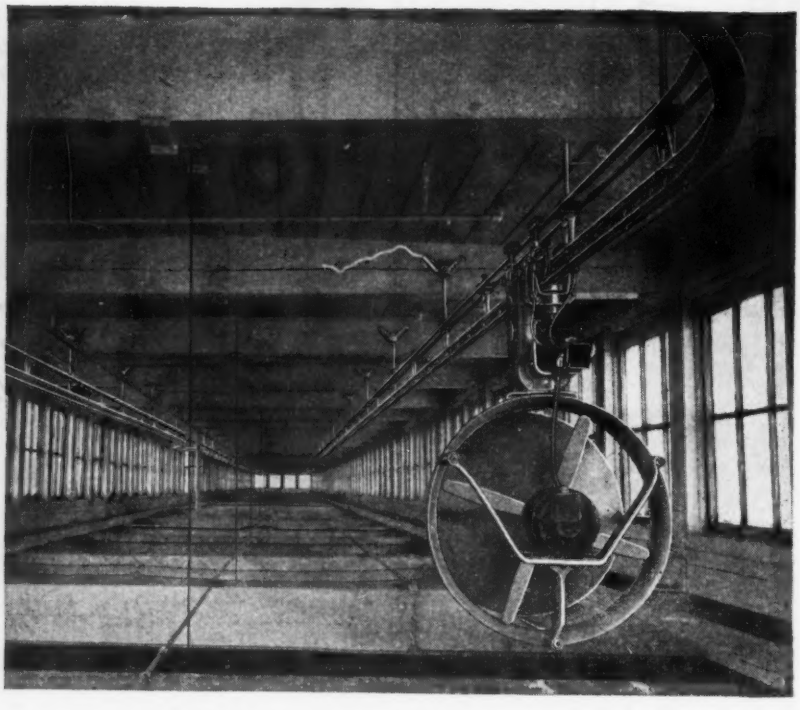
An American MonoRail Engineer will gladly explain further details.

Write for copy of booklet describing American MonoRail Monitor Cleaning.

THE AMERICAN MONORAIL CO.

13108 Athens Avenue ★ Cleveland 7, Ohio

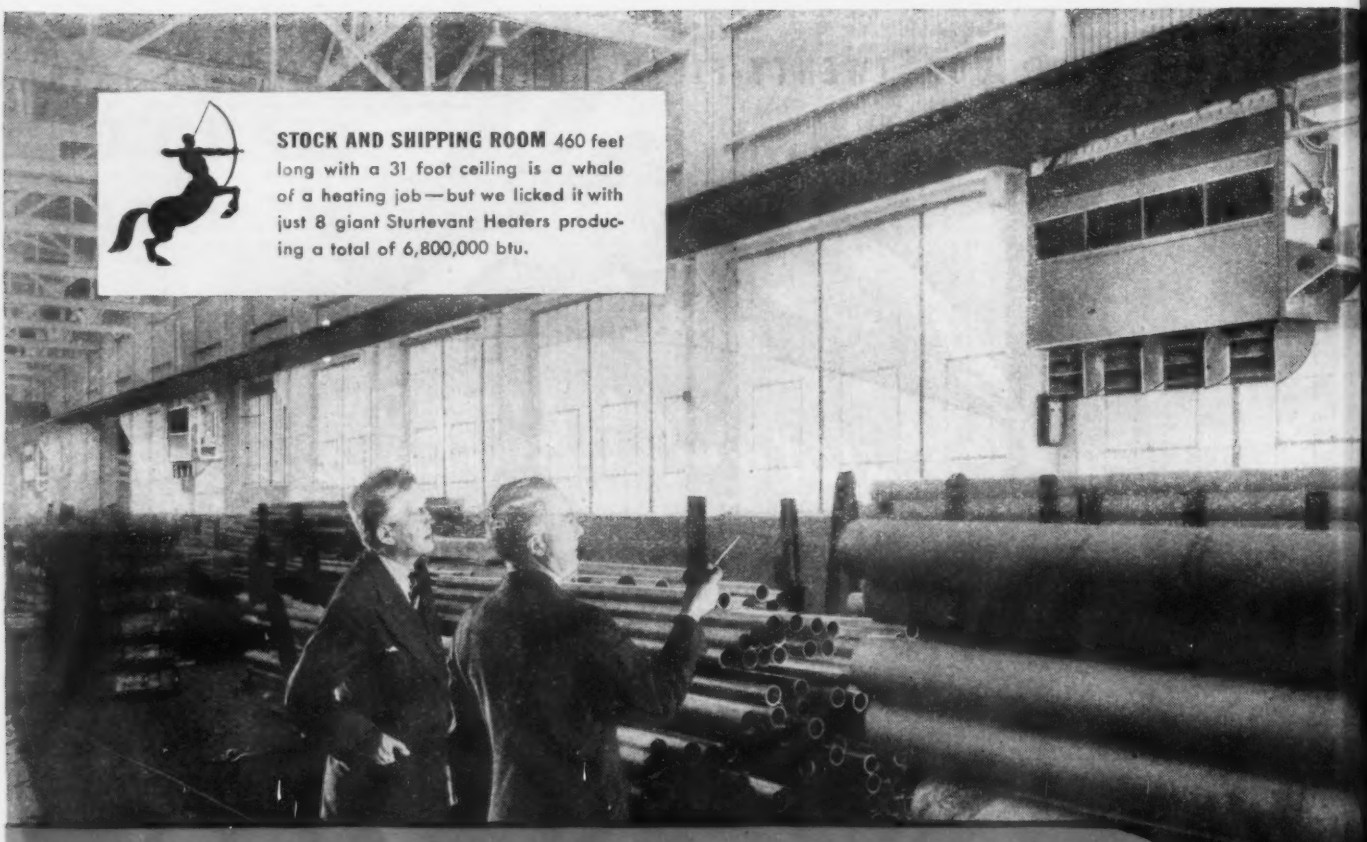




CELEBRATING OUR TWENTY-FIFTH ANNIVERSARY • 1920-1945

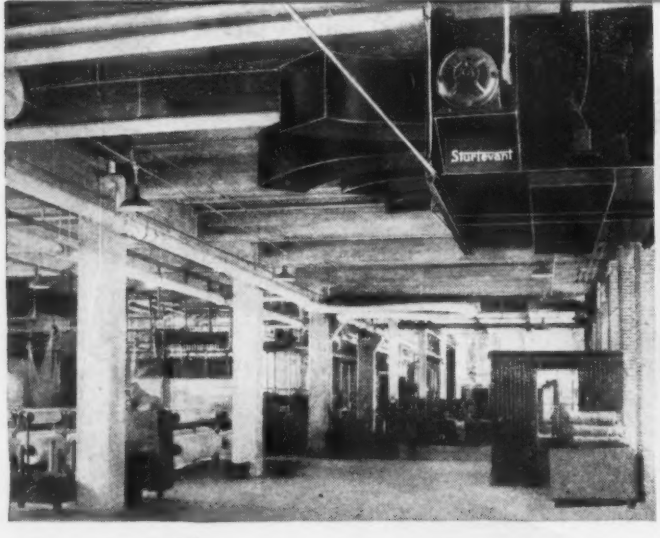
Fabrics processed with HARTEX products
are in use the world over
HARTEX Products have aided mills with government contracts to meet military requirements at wartime speed—and fabrics thus produced are serving in every quarter of the globe. Peace-time will see new weaves, new synthetic fabrics, creating world-wide business. And many merchandising problems will be solved by using HARTEX products.
KOPAN permanent cellulose finish • CARO-GANT cotton warp size
PIGMENT COLOR CONCENTRATES •DYPENOL mercerizing penetrant
REPELON water repellent finish • CATYLON cation-active softener
HYTERGEN synthetic detergent • HYMOTOL non-ionic wetting agent
HARTEX

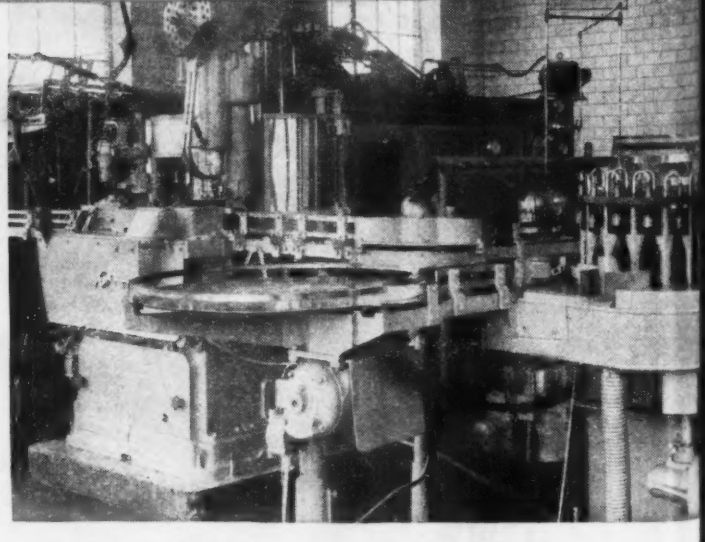
HART PRODUCTS CORPORATION • 1440 BROADWAY, NEW YORK



STOCK AND SHIPPING ROOM 460 feet long with a 31 foot ceiling is a whale of a heating job—but we licked it with just 8 giant Sturtevant Heaters producing a total of 6,800,000 btu.

Last month we SAVED FUEL for 217 customers like you...



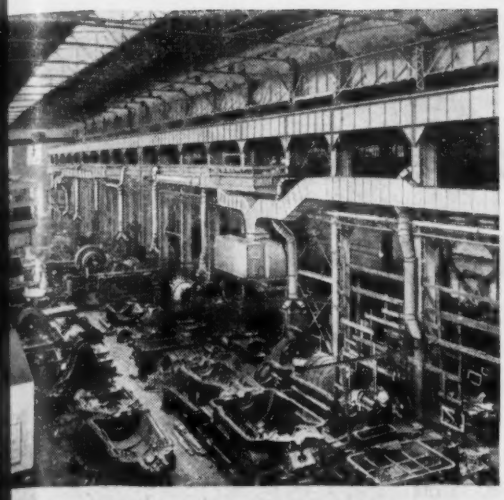


PEPPERELL FABRICS

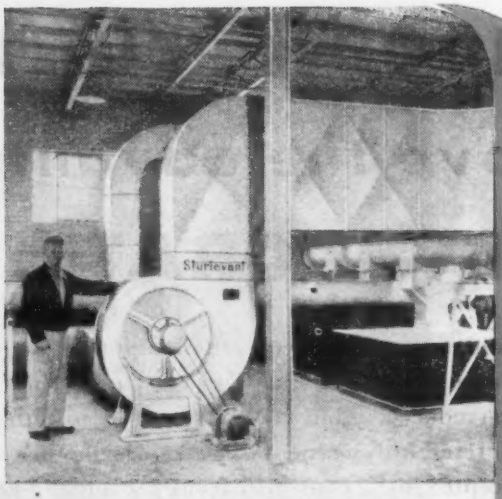
DYEHOUSE ranges and other vapor-producing processes create a tricky heating problem—that Sturtevant solves—cuts fuel bills in the bargain with a Unit Heater and Vapor Absorption System.

Coca-Cola

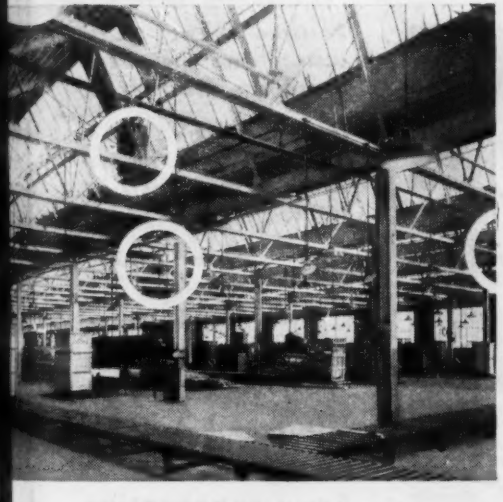
BOTTLING PLANT hands the job of heating the entire plant to Speed Heaters—producing *balanced* heat and making every ounce of steam pay off.



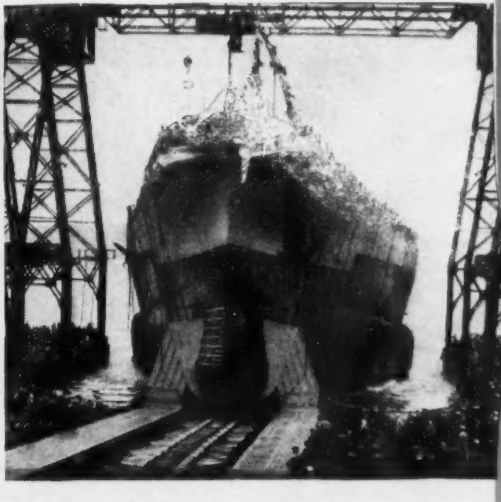
MACHINE SHOP heating job is handled by two large Sturtevant Systems—on opposite walls—special nozzles distribute heat efficiently, fuel costs are minimized.



SEWAGE PLANT calls for a combined heating and ventilating system where recirculated room air is blended in the outside air to minimize heat load.



ASSEMBLY PLANT with high sawtooth roof conserves heat when Speed Heaters are strategically located in accordance with size and shape of the area, proper paths of heat travel.



N. Y. NAVY YARD makes use of almost every type of heating strategy—from a hot blast central system to special portable heaters used during ship construction.

AIR CONDITIONING

DRYING

MECHANICAL DRAFT

VENTILATING

HEATING

DUST AND FUME CONTROL

The important question to ask about any heating installation is "Will it pay?"... That's why we talk heating with this basic concept in mind — *that every Sturtevant job must profit the user.* No wonder business leaders everywhere call us in on heating problems — and say "ace high" to Sturtevant's economy-minded engineering. Sturtevant makes *all* types of heating units and systems — so we play no favorites. Our advice is always based on what's most economical for you. And Sturtevant is ready now to work with your planning committee to get engineered air recommendations down in black and white — ready for budget approval — and ready for action on conversion day.

B. F. STURTEVANT COMPANY
Hyde Park Boston 36, Mass.

Sturtevant
REG. U. S. PAT. OFF.
Puts Air to Work

OVER 1000 OPERATING UNITS

prove the advantages of

AMCO EVAPORATIVE COOLING

AMCO Evaporative Cooling adds to the recognized advantages of humidification the benefits that come from reduced temperatures. This clean, efficient, ductless system has been accepted by textile men as the most logical and efficient means of controlling temperature and comfort twelve months of the year.

Today, over 50 mills testify to its record of performance.

If you are planning to put your mill on a basis to meet peacetime competition you will have to go to higher machine speeds. Now is the time to protect your mill from the added "grief" that accompanies higher speeds, greater heat. Call for an AMCO engineer . . . let him show you how this better, simpler cooling system will pay you dividends.

Reduces excessive temperature and holds relative humidity at point best suited to fibre and process.

Speeds production in high friction (heat) areas.

Assures evener yarn counts and increases breaking strength.

No cumbersome ducts to become clogged and obstruct light.

Easy to install—minimum disruption.

High flexibility to meet changing room conditions.

Minimum maintenance.

Amco Evaporative Cooling utilizes your present humidification system.

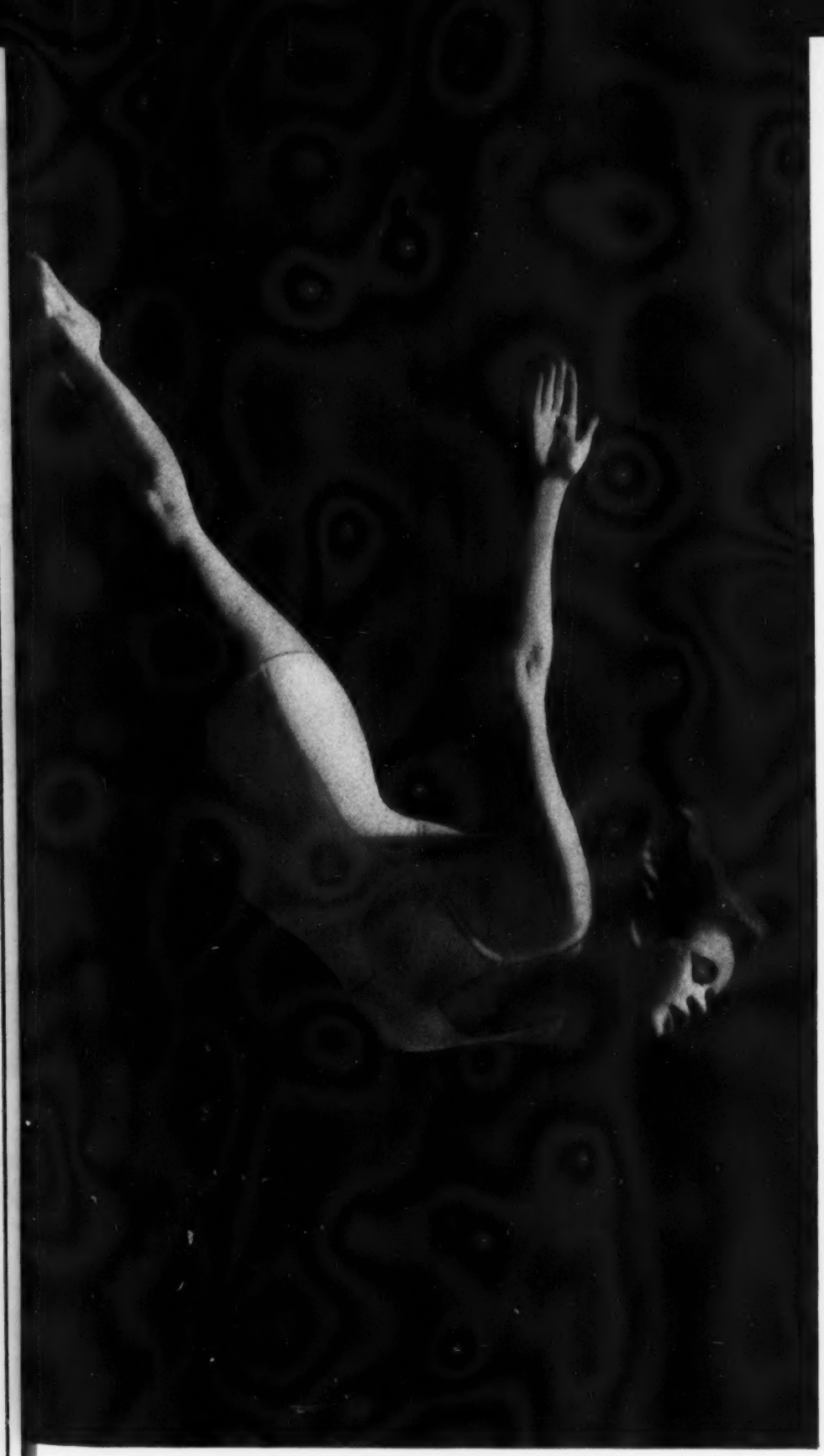
Increases workers' comfort.

●

American Moistening Company, Providence, R. I. – Boston – Atlanta – Charlotte

AMCO

EVAPORATIVE COOLING SYSTEMS



GOOD *form*

is important in knitting, too. And Torrington Needles—the machine-made needles—will help you achieve that correctly tensioned, form-fitting quality that is basically essential in swimsuits and many other types of knit goods.

TORRINGTON *Latch Needles*

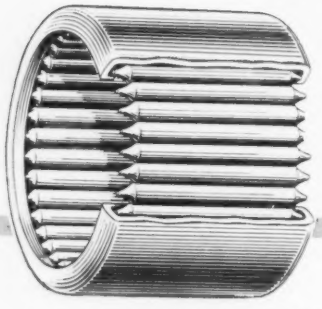
TORRINGTON Latch NEEDLES
The Torrington Company, Torrington, Conn., U.S.A.
Established 1866
Branches: New York • Philadelphia • Chicago
Boston • Greensboro, N. C. • St. Louis
Toronto, Canada

Give Your Spindles High Speeds—Larger Package Capacity with Needle Bearings

Higher spindle speeds and heavier package loads are two advantages made possible by Torrington Needle Bearings. These small, compact, anti-friction Needle Bearings have unusually high radial load capacity, are simply and efficiently lubricated and make possible longer periods of continuous operation.

Used in spindles and many other important parts of modern textile machines, these modern anti-friction bearings contribute directly to *lower operating costs* and *higher efficiency*.

When you plan to buy new machines or to modernize your existing equipment, it will be worth your while to know more about the advantages of the easily-installed, low-cost Torrington Needle Bearings. Our Catalog 30-A containing data on types and sizes to meet your specific requirements will be sent on request.



THE TORRINGTON COMPANY

Established 1866

TORRINGTON, CONN. • SOUTH BEND 21, IND.

New York Boston Philadelphia Detroit Cleveland
Seattle Chicago San Francisco Los Angeles Toronto
London, England

TORRINGTON NEEDLE BEARINGS

These 6 Innovations . . .

by SMITH-DRUM In Package Dyeing Are Now Considered *"Essentials"*

In 1937, a new package dyeing machine of radically-advanced design was offered the textile industry by Smith-Drum. It embodied 6 major features never before available in any package dyeing machine. Acceptance of this machine and its 6 major advantages was almost instantaneous! Since then, these features have come to be regarded by most as absolutely essential for satisfactory package dyeing.

. . . And New Developments Coming

A number of important new features for the postwar Smith-Drum Package Dyeing Machines are already under development. Be assured, your orders placed *now* for postwar delivery will naturally include these new developments . . . guaranteeing to you the most advanced machine of its type, no matter *what* Smith-Drum machine you order. To get earliest possible delivery we urge you to order *right now!* Write . . . Smith, Drum & Company, Allegheny Avenue at 5th Street, Philadelphia 33, Pa.

MITH-DRUM Textile Machines

for hosiery dyeing, skein dyeing, package dyeing, beam dyeing, piece goods dyeing, package drying, skein mercerizing, warp mercerizing, hosiery inspection.

PERKINS AUTOMATIC BIN PILERS

PATENTED

You cannot afford to pile by hand

B. F. PERKINS & SON, INC.

ENGINEERS AND MANUFACTURERS

HOLYOKE • • • MASSACHUSETTS

AVAILABLE SOON

New ZEPHYR HYDRAXTOR

the Extractor of the Future

RADICAL *in design*
STARTLING *in performance*
SIMPLE *in operation*
LARGEST *in capacity*

WHAT'S AHEAD IN EXTRACTING? Look to Zephyr for your answer. This revolutionary new Hydraxtor—a product of nearly six years of engineering research—represents the biggest change in extracting in the entire history of laundry and textile finishing.

HYDRAXTOR HIGHLIGHTS:

Remarkable time and labor saver—field tests prove 50% to 75% time savings per extractor load; actual loading and unloading time only 30 seconds each; cycle of operation 6 to 8 loads per hour • No noise or vibration • Absolute safety • Easy to install and maintain • Never needs balancing • No moving parts • Minimum horsepower required • Small standard motors • Cannot tear or damage clothes • No hard dried extractor wrinkles • Uniformly successful on all types of work.

PLAN YOUR WASHROOM MODERNIZATION AROUND THE NEW ZEPHYR HYDRAXTOR

WRITE FOR DETAILS

Meanwhile Buy More War Bonds

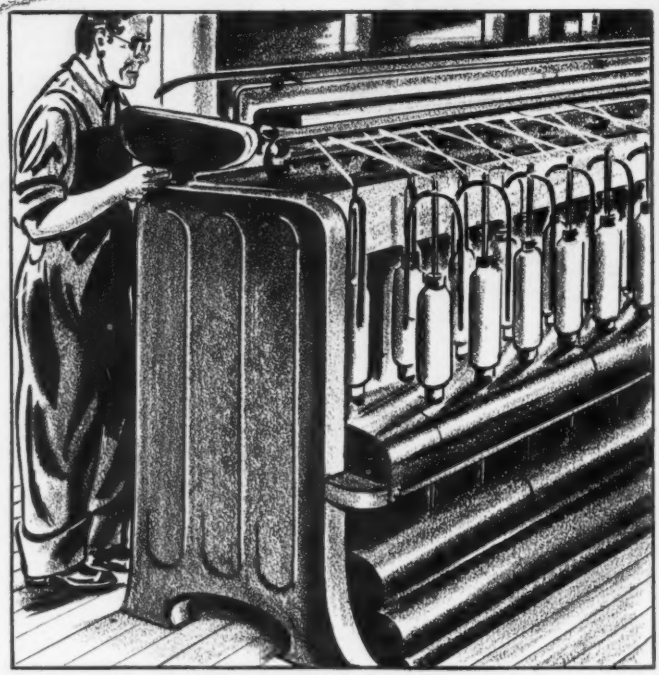
PEACE TIME DESIGNERS AND BUILDERS OF . . .
"HI-SPEED" WASHERS
"UNA-RETURN" IRONERS
DUO "GLIDE" IRONERS
"NO-BAK" ADDITION

ZEPHYR
LAUNDRY MACHINERY COMPANY
2034-54 W. FULTON STREET, CHICAGO 12, ILLINOIS

Do you know that . . .

AMERICAN AIRLINES INC. UNDER CONTRACT TO THE AIR TRANSPORT COMMAND HAS MADE MORE THAN 4300 TRANSATLANTIC CROSSINGS . . . FOR LUBRICATION OF ITS GREAT FLAGSHIP FLEET, AMERICAN USES SINCLAIR PENNSYLVANIA MOTOR OIL.

CRUDE OIL AND FINISHED PRODUCTS TRANSPORTED DAILY THROUGH THE SINCLAIR PIPELINE SYSTEM WOULD FILL 318,400 55-GALLON DRUMS. THESE, STACKED END ON END WOULD BE 31 TIMES HIGHER THAN MT. EVEREST. SINCLAIR USES OLDEST CRUDES TO MAKE HIGHEST QUALITY LUBRICANTS.

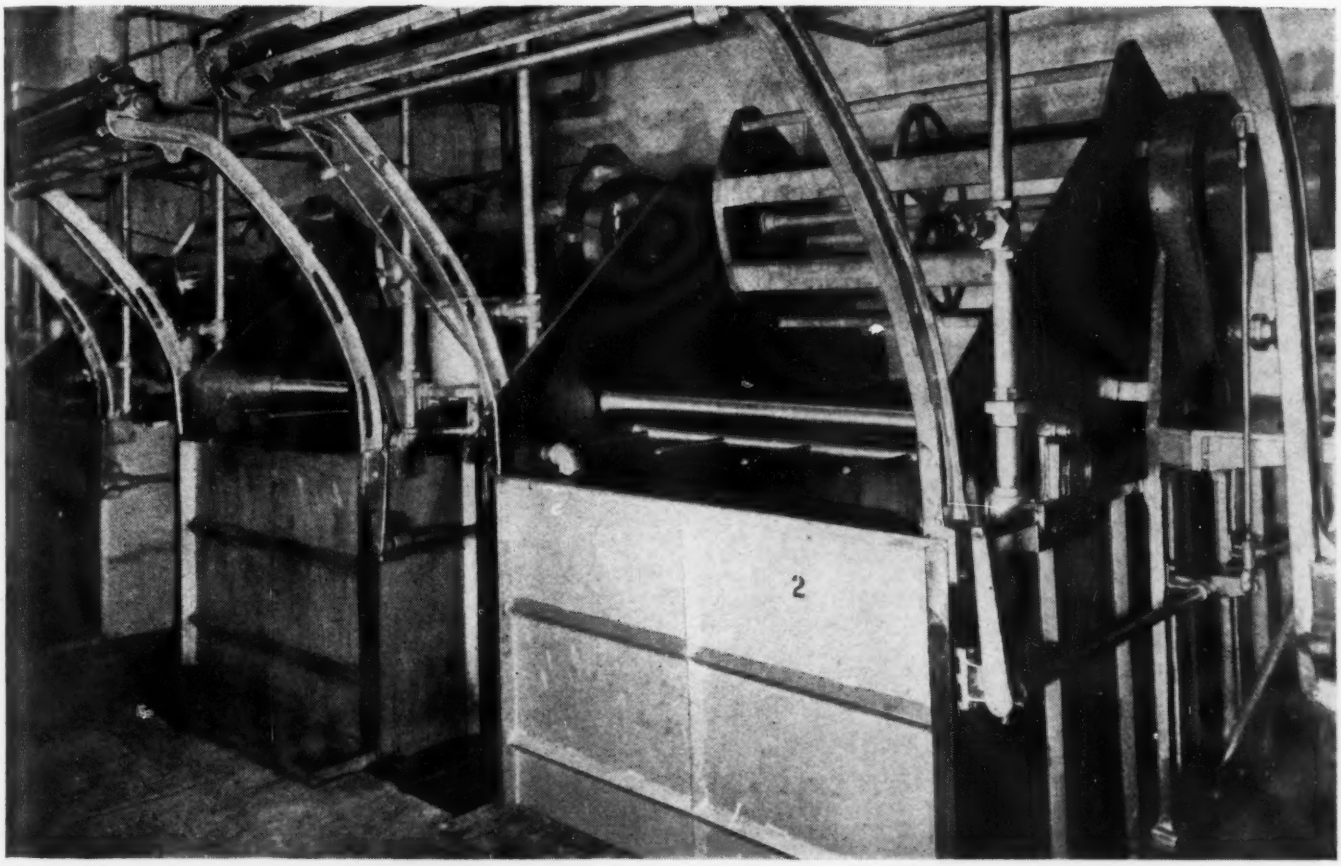


FOR COOL, NO-DRAG, HIGH SPEED SPINDLE OPERATION SINCLAIR PROVIDES LILY WHITE OILS . . . AND FOR ALL MILL REQUIREMENTS, HIGHLY SPECIALIZED LUBRICANTS TO PROMOTE BETTER MACHINE PERFORMANCE, SAVE WEAR AND REDUCE LUBRICANT INVENTORIES.

SINCLAIR IS EQUIPPED TO SERVE YOU BETTER!

FOR FULL INFORMATION OR LUBRICATION COUNSEL WRITE SINCLAIR REFINING COMPANY, 630 FIFTH AVENUE, NEW YORK 20, N. Y.

Switch from ONE COLOR to ANOTHER with just a "WASH and WIPE"



One dyeing machine can do the work of several pieces of out-dated equipment—*if that dyeing machine is made of Republic ENDURO Stainless Steel.* And here's why:

You can save valuable time with ENDURO equipment—because color changes are made quickly. You can switch from a dark shade to a light one—or vice versa—with just a "wash and wipe." Merely flush out the tank with water and wipe it with a cloth.

But that's not the only advantage that comes with ENDURO equipment. ENDURO is as inert to dyeing solutions as porcelain—hence colors are true to shade. It is unaffected by dyeing, bleaching and other textile solutions. It resists rust and corrosion. It is tough and strong. It lasts indefinitely and soon repays the user for its slightly higher initial cost.

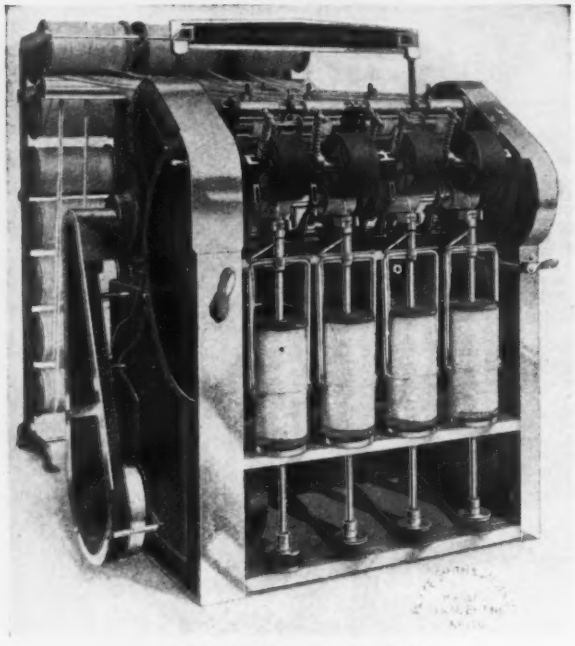
Right now is the time to plan for future equipment. So right now is the time to learn what ENDURO can do for you. Ask your equipment manufacturer or write us. Or consult with present users of stainless equipment and get the story first hand, based upon actual experience.

REPUBLIC STEEL CORPORATION
Alloy Steel Division • Massillon, Ohio
GENERAL OFFICES • CLEVELAND 1, OHIO
Export Department: Chrysler Building, New York 17, N. Y.

Republic
ENDURO STAINLESS STEEL
Reg. U. S. Pat. Off.

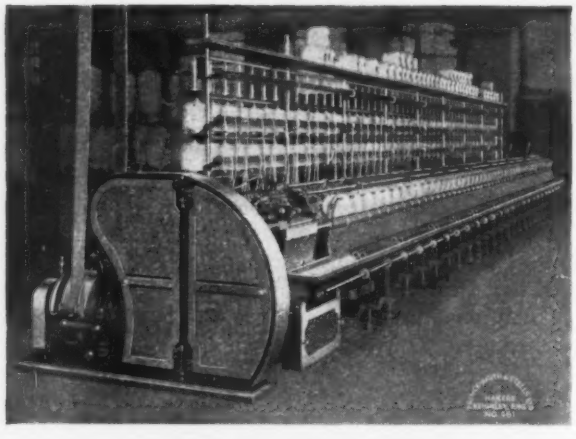
Other Republic Products include Carbon and Alloy Steels—Pipe, Sheets, Strip, Plates, Bars, Wire, Pig Iron, Bolts and Nuts, Tubing

WORSTED



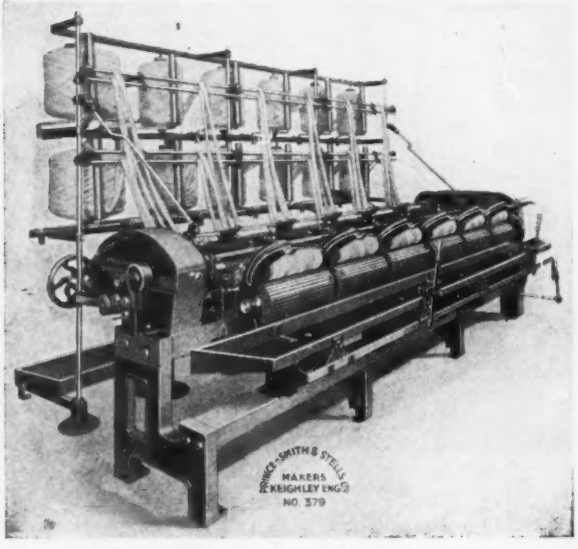
ENGLISH DRAWING BOX

ENGLISH, ANGLO - CONTINENTAL AND CONTINENTAL SYSTEMS.



CONTINENTAL DRAWING BOX

WE MANUFACTURE MACHINERY CAPABLE OF PRODUCING ALL QUALITIES AND TYPES OF WORSTED YARNS.



ANGLO-CONTINENTAL DRAWING BOX

WHEN YOU ARE CONSIDERING ANY EXTENSIONS OR ALTERATIONS TO YOUR PLANT MAY WE HAVE THE PLEASURE OF OFFERING YOU OUR SERVICES.

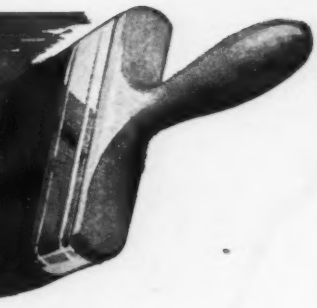
PRINCE-SMITH & STELLS LTD.

WORSTED MACHINERY MANUFACTURERS

KEIGHLEY (Yorkshire) ENGLAND

Agents: Atkinson, Haserick & Co., 211 Congress Street, Boston, Mass.

COLOR IN YOUR PLANT



What will you GAIN by using it?

What will you LOSE by using it?

This down-to-earth booklet will help you decide for yourself!

THERE'S a lot of discussion going on these days over the idea of using more color in the industrial plant.

We're all for it if it's used in the *right places.* But if you've been tempted to go "all out" for color on such important light-reflecting surfaces as the ceilings and walls of your plant, it will pay you to stop and ask yourself these three fundamental questions:

1. ***What are we painting for?***
2. ***What will we GAIN by using color?***
3. ***What will we LOSE by using color?***

With the help of some of America's top ranking light and color authorities, we have prepared expressly for industrial plant executives a little 16-page booklet which we believe will help you arrive at the answers to these three questions. Entitled "Color for Industry," this booklet covers the use of color for every plant area and surface and outlines a simple but effective plan for the promotion of plant safety through the use of color.

USE THIS COUPON

To help save paper for Uncle Sam we are limiting distribution of "Color for Industry" to executives who specifically request a copy. To avoid disappointment, fill out and mail this coupon TODAY.

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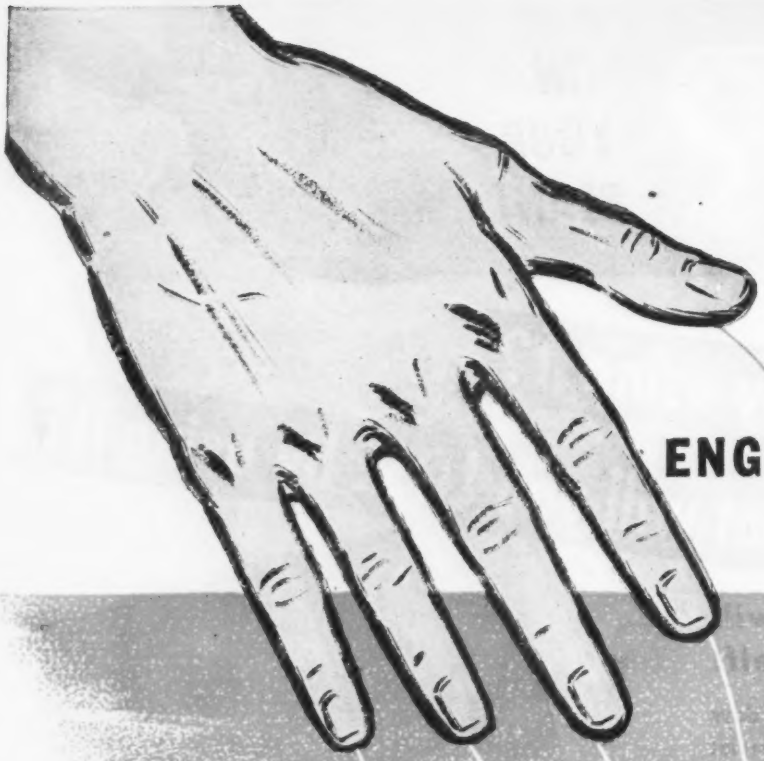

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Tide Water engineers are thoroughly experienced in all phases of industrial lubrication. They will be glad to assist you in selecting the Tycol lubricant best suited to your specific need. Call or write your nearest Tide Water Associated office for further details.

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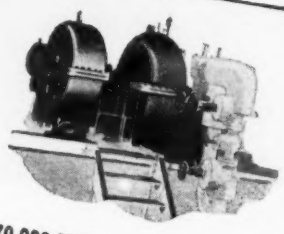
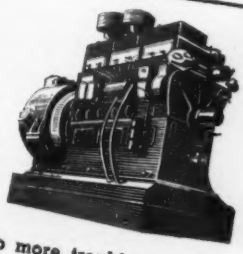
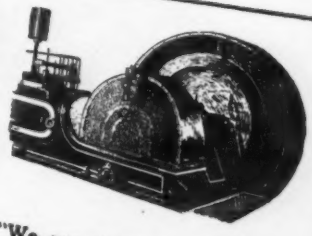


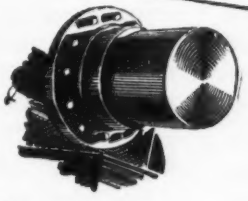
"70,000 Hours continuous operation . . . neutralization only .09." That's typical of the unusual performance achieved with Tycol Turbine Oil. Thanks to Tide Water's Edeleanu process, this oil has greater stability and resistance to emulsification . . . assuring more economy, steadier operation, smoother performance.



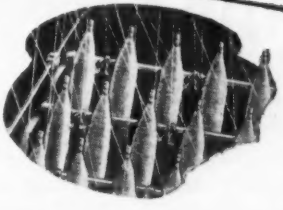
"No more trouble with sticking valves . . . costly delays and overhauls eliminated . . . engines giving better service . . ." — that's how one plant engineer describes the improved results gained with Tide Water Diesel Oil. It assures maximum economy — top performance — from every gallon of lubricant.



"We saved 33⅓% in oil costs when we changed to Tide Water E. A. Cylinder Oil." That report from a plant engineer typifies the kind of economical, trouble-free lubrication provided by Tide Water Steam Cylinder Oil in hundreds of plants. It gives better protection, promotes efficient operation and lowers lubrication costs.



"Never a single bearing overheated since we changed to Tide Water Green Cast Grease," says one chief engineer. No matter how severe the service, Tide Water Green Cast Greases assure better lubrication . . . less maintenance. The reason? They contain more high-grade cylinder oil — less soap — which means better performance in every application.



"300,000 Spindles operating for 13 years without a single lost tube" — that's a textile mill operator's way of pointing out the superior performance of Tycol Spindle Oils. For every textile application — from power plant to finishing — there's a Tycol Lubricant scientifically engineered for the job.

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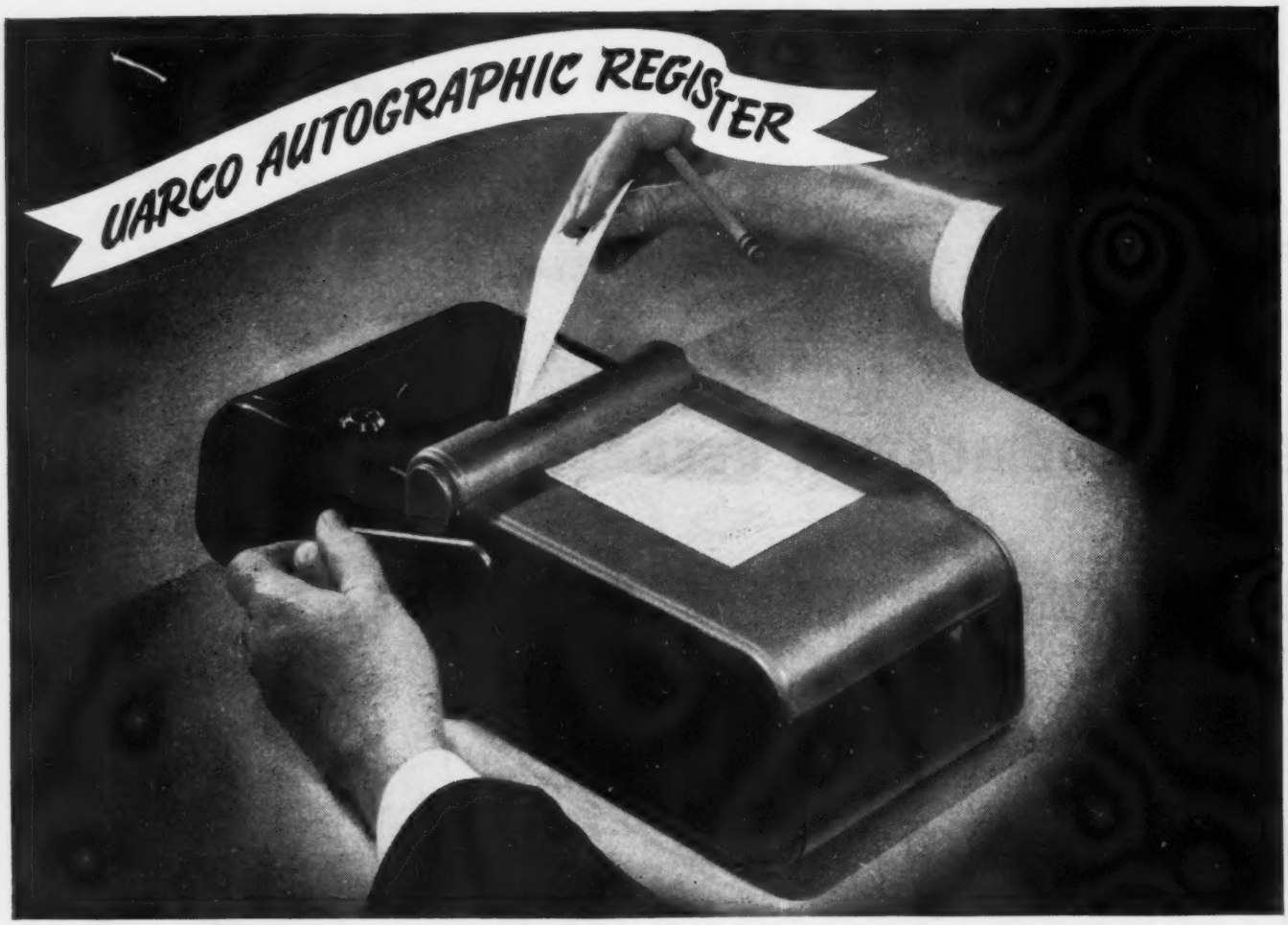
INDUSTRIAL LUBRICANTS

ENGINEERED FOR EVERY INDUSTRIAL USE



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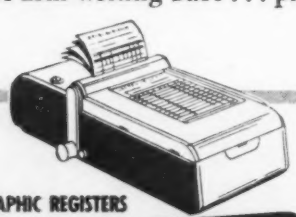
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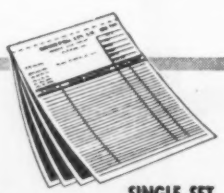
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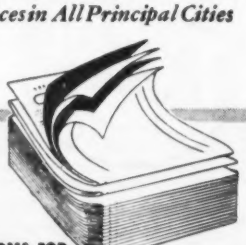
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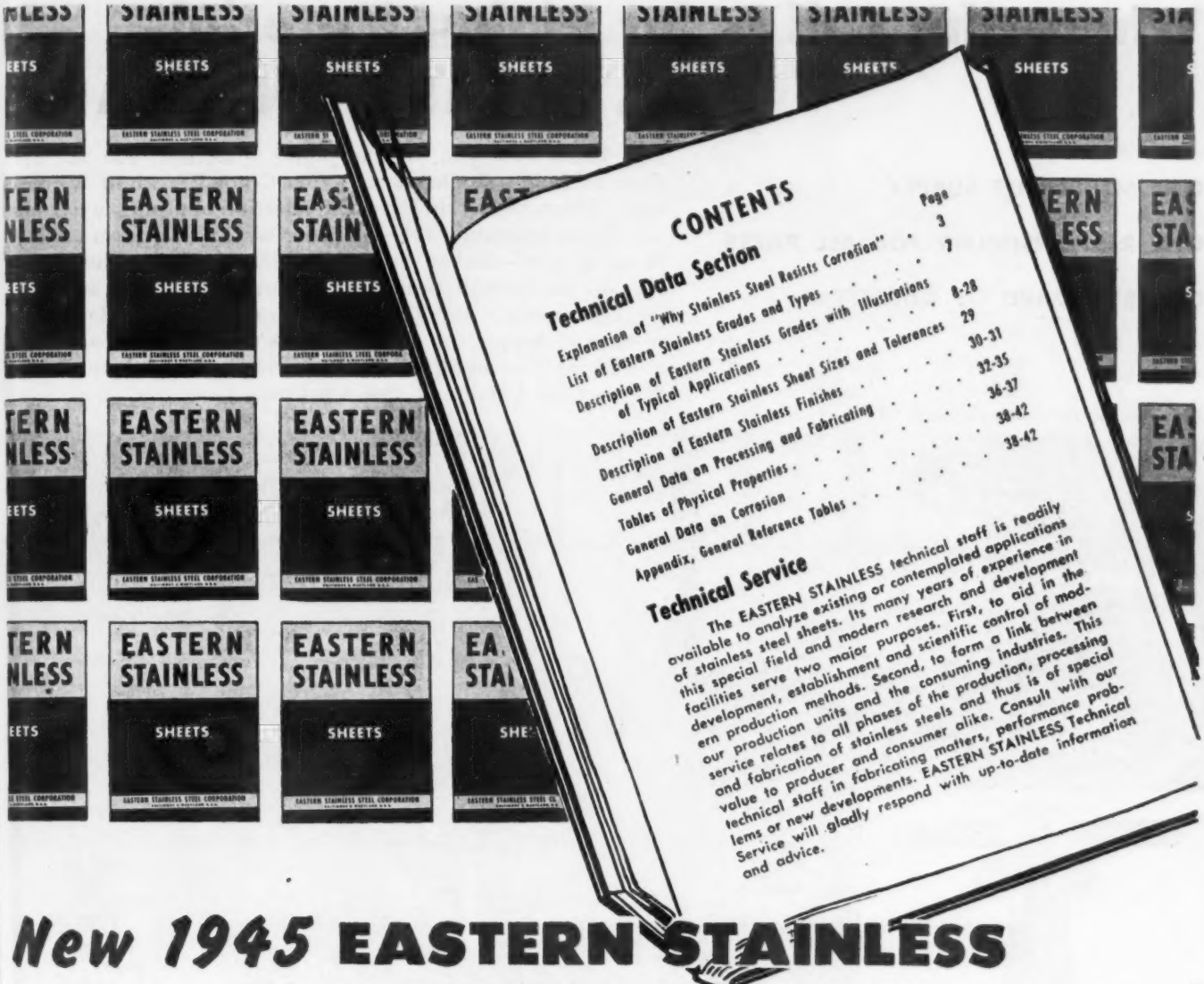
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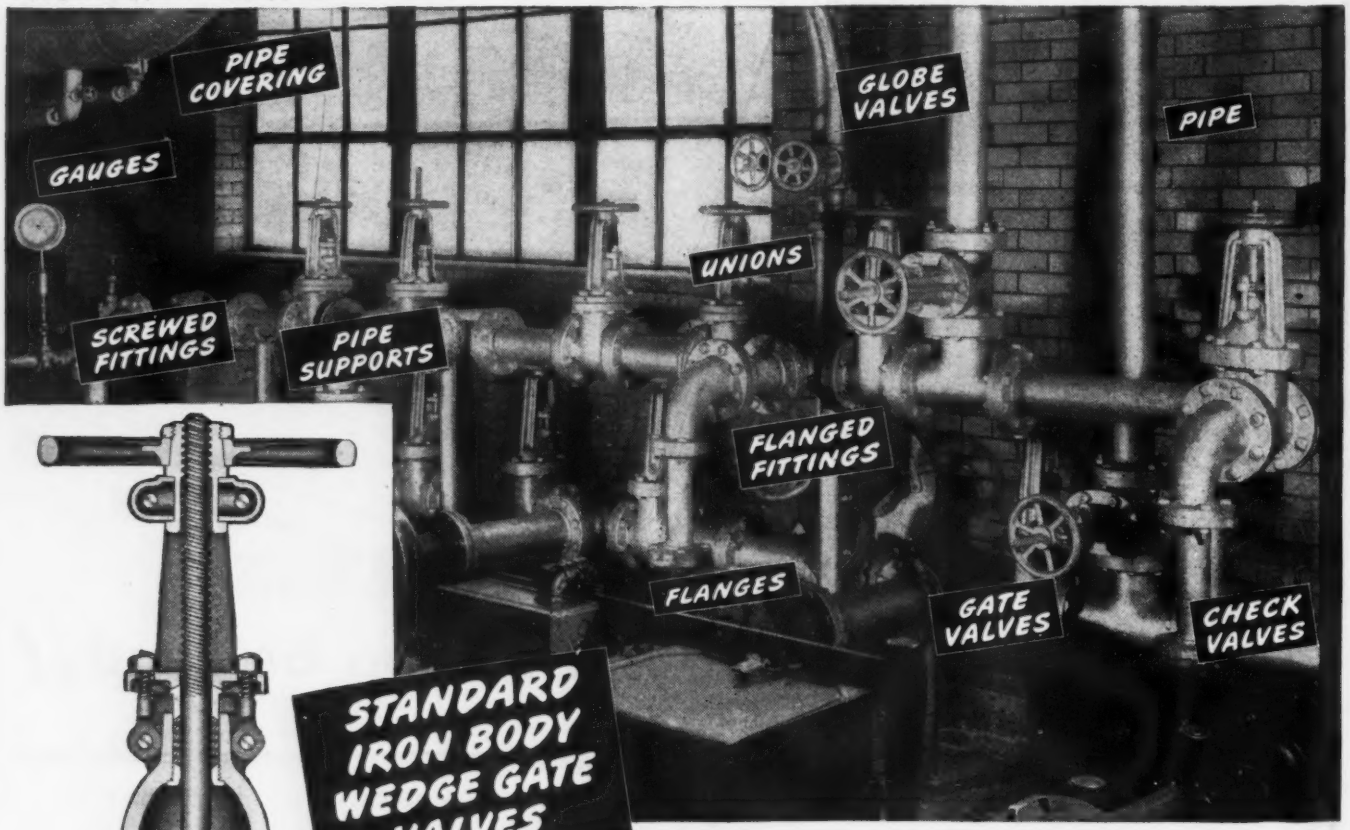
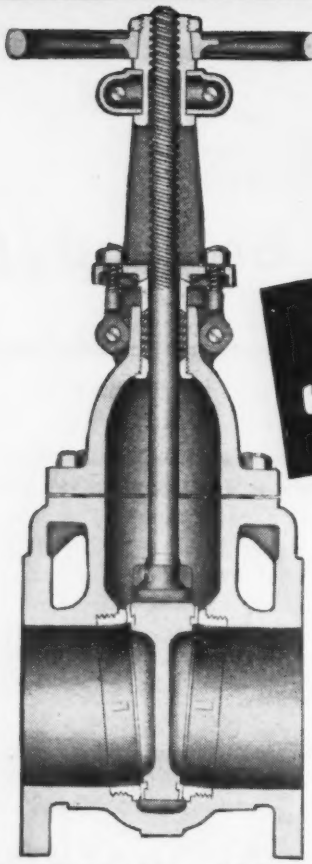
Piping hook-up for a battery of pumps





STANDARD IRON BODY WEDGE GATE VALVES

SERVICE RECOMMENDATIONS: **Crane Standard Iron Body Wedge Gate Valves** with Brass trim are recommended for steam, water or oil lines; all-iron valves for oil, gas or fluids that corrode brass but not iron. Made in O. S. & Y. and Non-Rising Stem patterns.

Working Pressures

Size of Valve	Screwed or Flanged Valves		Hub End Valves
	Saturated Steam	Cold Water, Oil, or Gas, Non-Shock	Cold Water or Gas Non-Shock
2 to 12 in.	125 pounds	200 pounds	200 pounds
14 and 16 in.	125 pounds	150 pounds	150 pounds
18 to 24 in.	*	150 pounds	150 pounds

*For steam lines larger than 16-inch, Crane 150-pound Cast Steel Gate Valves are recommended.

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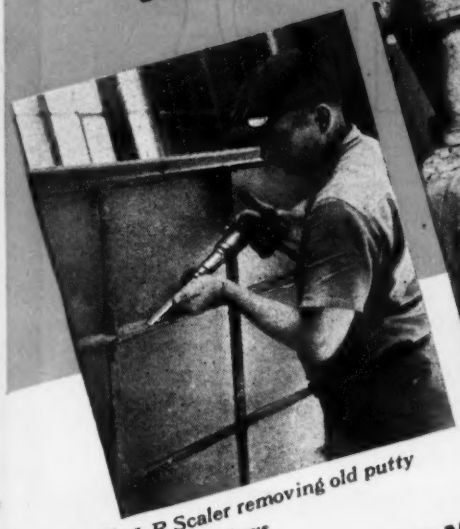
Multi-Vane close quarter drill on repair job



I-R Scaler removing old putty from windows

I-R Impact Wrench dis-assembling a pump

I-R Scaler used for cleaning machinery

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THERE IS AN AIR TOOL FOR EVERY JOB

Air tools deliver *maximum* power per pound. Air tools are easy to control and safe to handle. Compressed air alone is an efficient tool . . . use it for cleaning motors and other machinery.

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There is an I-R air compressor to furnish the air for all these operations — and an Ingersoll-Rand representative near you who knows Air Power. Send for your copy of "Air Tools," Catalog 5000.

Jackhamer drilling holes for foundation bolts

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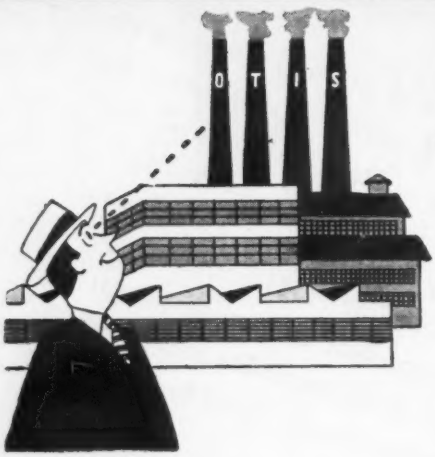
AND YOUR EYES

1. On flat-tops, battleships, and cruisers, Otis precision-built elevators have been and are today serving the United States Navy on the seven seas. From our experience in providing this equipment have come marked improvements in design, new manufacturing techniques, and a store of knowledge destined to provide still further improvements in Otis Elevators after the war.

2. Today, therefore, when planning the modernization of your present equipment, give particular consideration to Otis Elevators. This company, with 244 offices throughout the United States, is in a position now to cooperate with you in the preparation of plans and surveys.



3. *So, keep your eyes on Otis.* In the days ahead, this company, through the continued use of advanced methods and new skills, will, as in the past, be ready to assure you of the last word in efficient and economical vertical transportation.

Remember, there is an Otis representative as near as your telephone. He will be glad to discuss future plans for new elevator or escalator installations or the modernization or maintenance of existing equipment. Call him today.

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Visualize the significance of LANASET for woolen fabrics to provide new satisfaction in sportswear, women's dresses, socks, gloves, scarfs, children's clothes.

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LANASET provides a stabilizing finish which limits the tendency of wool fibers to felt and shrink when subjected to ordinary washing operations. The yarn on the left has been treated with LANASET. It is shown on the right after being washed. In the center is shown the untreated yarn after washing.

CALCO CHEMICAL DIVISION • AMERICAN CYANAMID COMPANY

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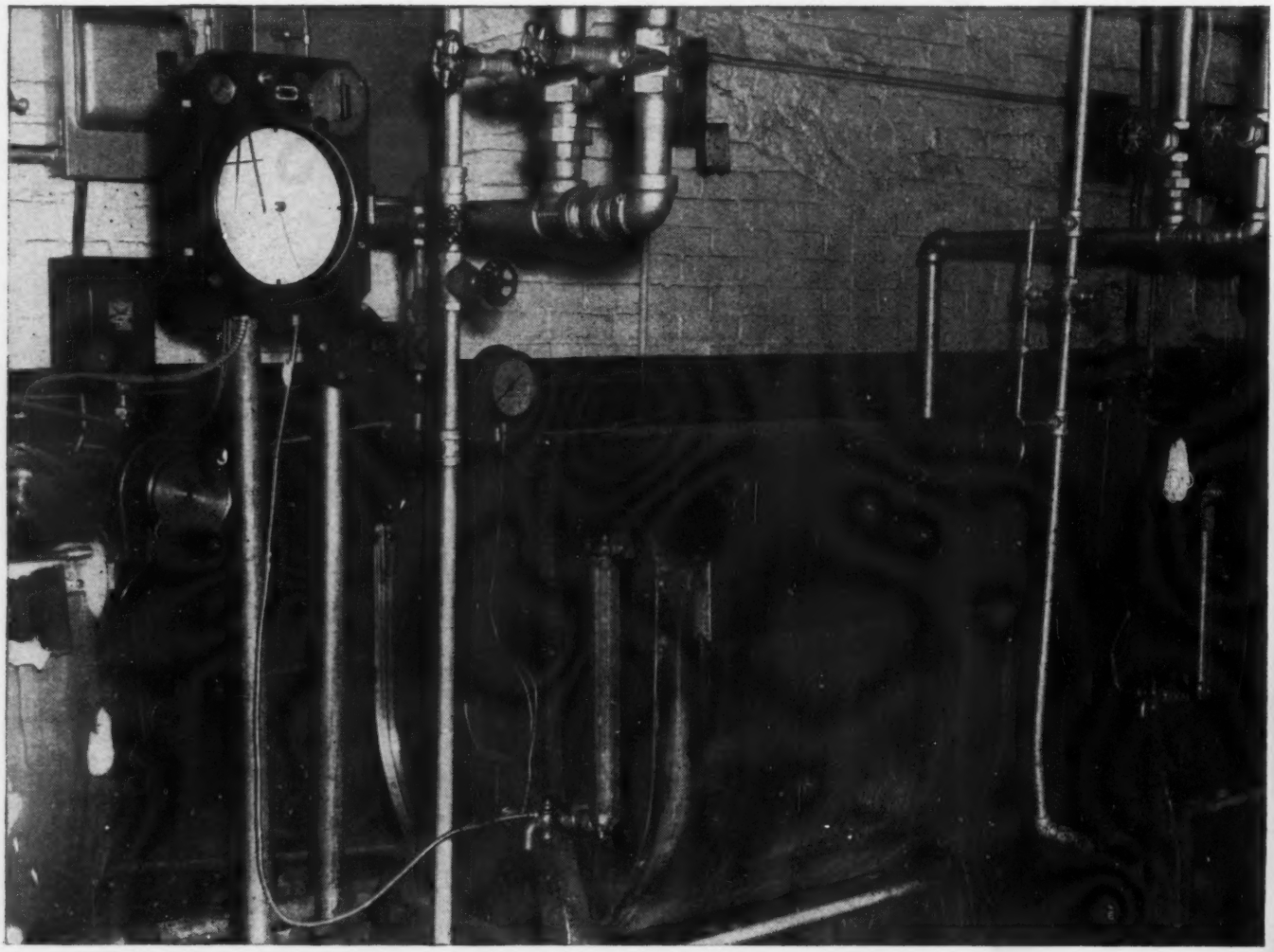
Lanaset* **FOR WOOL SHRINKAGE CONTROL THAT LETS THE WOOL BREATHE**

*LANASET is American Cyanamid Company's trade-mark covering its melamine resin for controlling wool shrinkage. The process under which it is applied is covered by United States re-issue Patent No. 22,566.

How hot, *how long?*



IT'S swell to have automatic control of dyeing temperatures. But the right temperature isn't much help unless it's on for *the right period of time.*

On these Venango Dye Machines at a big New England knitting mill, both time and temperature are controlled automatically, because each Taylor Fulscope Recording Temperature Controller is equipped with a built-in *Taylor Process Timer.*

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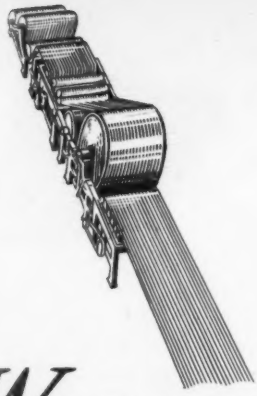

Weavers of Egypt . . .

● In those ancient times Egyptian weavers had discovered the value of warp sizing. History tells us that after the cotton had been spun and placed lengthwise in the horizontal loom it was necessary that the yarn then be starched with a paste made from grain. This smoothness served as a protection against the tearing action of the shuttle.

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Number Two in a series published as a Tribute to the Development of Weaving through the centuries.

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For stainless steel wherever used helps to increase output. To lower costs. To keep quality uniformly high.

In dyeing equipment for example, U·S·S Stainless Steel, because it so strongly resists the corrosive action of processing chemicals and is so easily and quickly cleaned, permits quicker color changes. There is no color carry-over and the shades stay "true."

The high strength of U·S·S Stainless, its superior ability to resist high heat and high pressure, to stand up under hard knocks and to look like new after years of severe, continuous service are advantages inherent in this perfected, time-tested stainless steel. They pay off big in extra service and reduced upkeep costs.

Is it any wonder that equipment manufacturers, when they want to impress you with the superior qualities of their product, so often add "Made of Stainless Steel" as the ultimate, indisputable proof of its goodness.

Keep this fact in mind when equipment replacement is under consideration. To make doubly sure of top performance, be specific when you order and say "preferably of U·S·S Stainless Steel."

U·S·S STAINLESS STEEL

SHEETS · STRIP · PLATES · BARS · BILLETS · PIPE · TUBES · WIRE · SPECIAL SECTIONS

USS STAINLESS STEEL — UNITED STATES STEEL

AMERICAN STEEL & WIRE COMPANY, *Cleveland, Chicago and New York*
CARNEGIE-ILLINOIS STEEL CORPORATION, *Pittsburgh and Chicago*
COLUMBIA STEEL COMPANY, *San Francisco*
NATIONAL TUBE COMPANY, *Pittsburgh*
United States Steel Supply Company, Chicago, *Warehouse Distributors*
United States Steel Export Company, New York

UNITED STATES STEEL

Form J — General Purpose Application

The Top Half Closed on Century Form J Motors Gives EXTRA PROTECTION

Against Falling Solids and Dripping Liquids

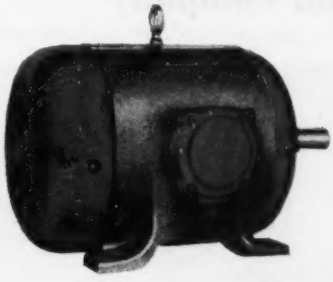
The Century Form J motor is a general purpose, open rated, continuous duty motor with an extra protective safety factor. The upper half of motor frame is completely closed, reducing the possibility of dripping liquids and falling solids entering the vital parts of the motor.

Adequate ventilation to compensate for the partial inclosure is provided by two fans to force a blast of cooling air around the bearings and ventilating passages surrounding the windings.

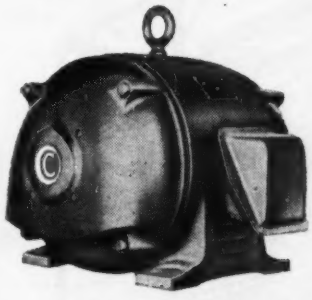
A Century Totally Enclosed Fan Cooled motor is available for installations requiring protection from atmospheres charged with abnormal quantities of metallic or abrasive dusts or powders, or abnormal amounts of acids, or alkali fumes.

For complete information on how Century motors are being used in the textile industry — and how they can bring benefits to you, call in a Century engineer, today.

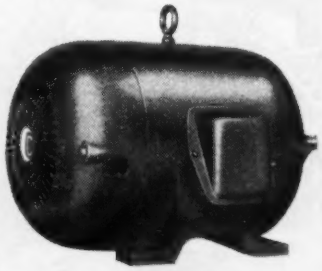
3 Other Types of Protection



Century Explosion Proof Motor



Splash Proof Protection



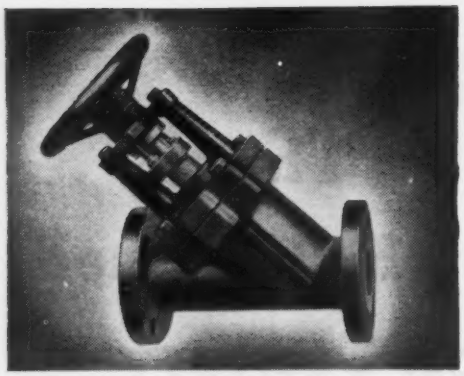
TEFC — Protects Against Destructive Dust, Grit, Powdered Materials

Century C MOTORS

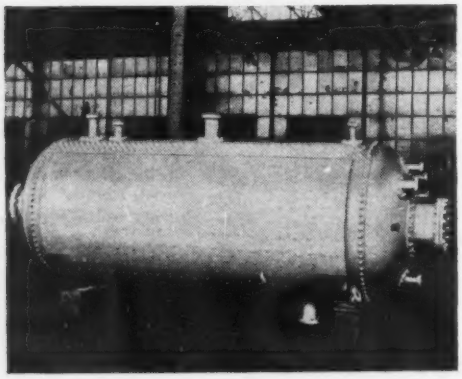
CENTURY ELECTRIC CO.

1806 Pine Street St. Louis 3, Missouri

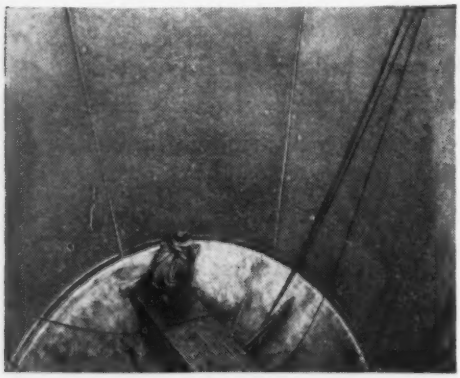
Offices and Stock Points in Principal Cities 382



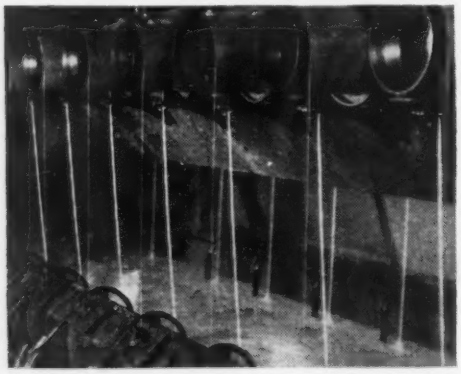
1 For the corrosion resistance of lead under higher pressures...lead-lined and lead-covered iron and steel equipment, including pipe, fittings and flanged acid valves, are available.



2 In equipment such as steam separators, autoclaves, and digesters supplied by us, the lead lining is firmly adherent because of our homogeneous bonding method.



3 Improved corrosion resistance at high temperatures is offered by Tellurium Lead, pioneered by National Lead. Its ability to "work-harden," to strengthen under strain, has won it wide usage for applications subject to undue stress.



4 The corrosion resistance of lead, plus the strength to stand up under vibratory stress, makes Tellurium Lead ideal for covering rayon spinning machines such as this. Installation was by O. G. Kelley & Co., lead burners.

Go "National" for Lead

Everything from Pipe to an Acid Recovery Plant

Whether it's a simple lead pipe, a lead-lined steam separator, or a complete acid recovery plant . . . remember National Lead means *lead*ership in Lead.

Here you can get lead sheet, pipe, coils, valves, flanges, traps, bends, burning bars—to fill every need from the smallest fitting to the largest lead-burning installation. And you get them in the type of lead—chemical, antimonial, tellurium or tellurium-antimonial—which best suits the purpose.

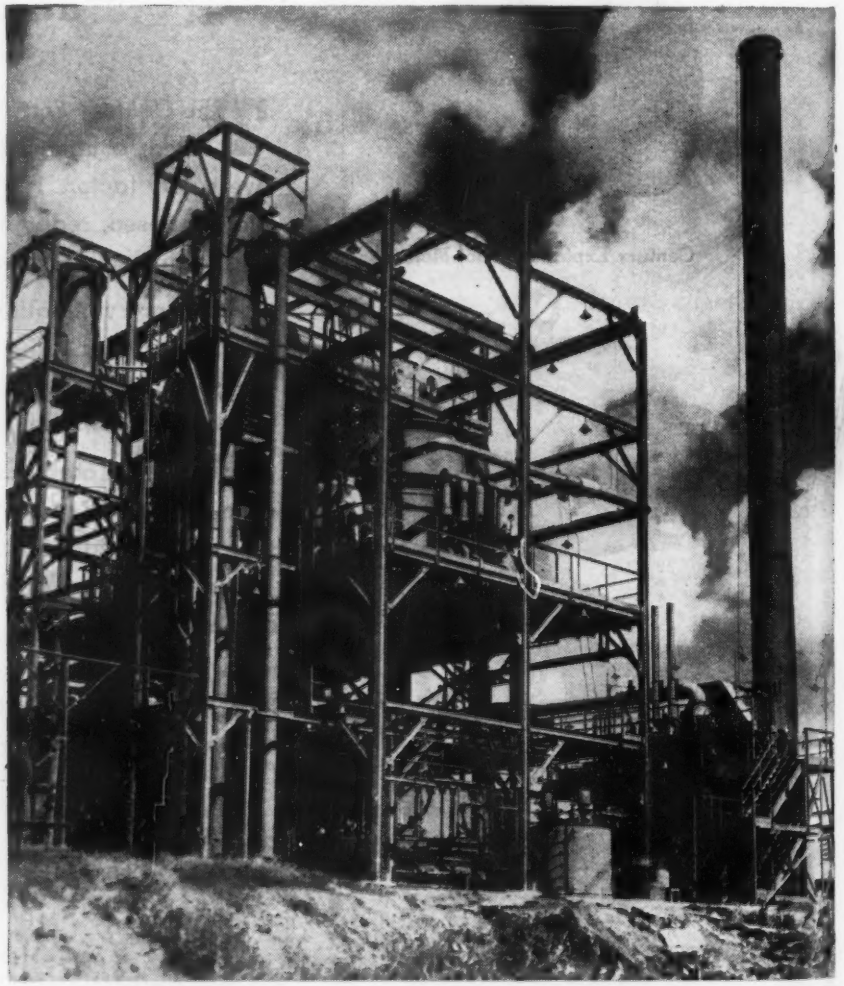
Here, too, you can get lead-lined and lead-covered equipment—acid valves, pipe and fittings, coils and pumps, as well as special lead-lined apparatus fabricated to specification.

Here you can even get a complete sulfuric acid recovery plant—employing the exclusive Simonson-Mantius Process—with everything from the initial plan to the final nut and bolt supplied by National Lead.

And, most important of all, you get the advantage of our years of experience with thousands of lead installations in every field handling corrosive solutions and gases. When you want lead, come to National Lead.

National Lead Company

111 Broadway, New York 6, N. Y. *Offices and Plants in Principal Cities and Canada*



5 More than 200 complete sulfuric acid recovery plants have been installed by National Lead. Several of these units have been in continuous operation almost twenty years. So remember, for everything from pipe to an acid recovery plant, *Go "National" for Lead.*

CROUSE-HINDS

approved Dust-Tight Lighting Fixture CONDULETS would prevent this

Type DLA Dust-Tight Lighting Fixture Condulet Pendent Type with Dome Reflector

Listed by Underwriters' Laboratories, Inc.

Electric Lamp Bursts . . . and 4600 pounds of cotton are ruined

About 100 cotton laps were stored in a passage in a Southern cotton mill. A 150-watt electric bulb burst and hot filament dropped on the cotton. The fire was controlled by four automatic sprinklers but it had already flashed over most of the cotton and practically all of it was damaged. A dust-tight lamp—one having an extra protective glass globe—would have prevented this damage. Such lamps are advised in dusty, linty locations.

Safety costs less than fires.
Property loss plus the interruption of vital production can cost many times as much as a safe installation of Crouse-Hinds dust-tight equipment.

Crouse-Hinds Dust-Tight Lighting Fixture CONDULETS—

Have a protective glass globe.

A sturdy one-piece body.
Cast metal.

Operate at a safe temperature.
Designed to allow ample heat radiation, even under a dust blanket.

Are streamlined —
To prevent a dangerous accumulation of dust or flyings on the outside of the fixture.

Sizes —
To take lamps from 100 to 500-watts.

Crouse-Hinds complete line.
Includes dust-tight panelboards, switches, circuit breakers, motor starters, plugs and receptacles, and a wide variety of junction CONDULETS.

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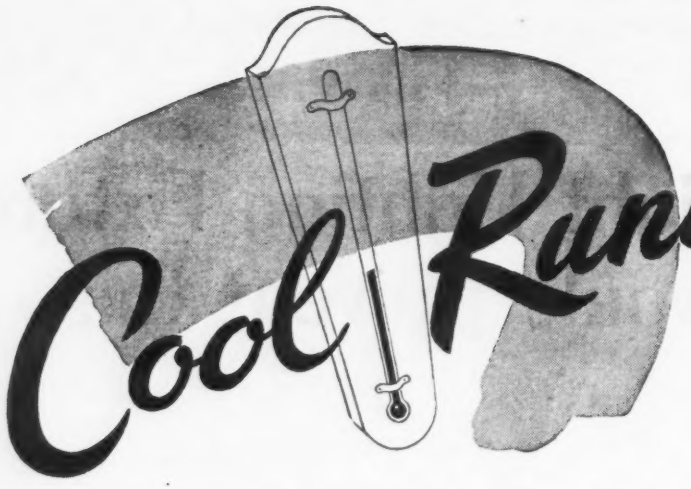
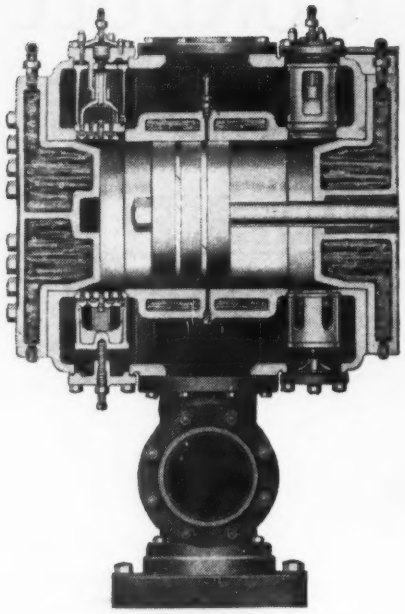


Cool Running

. . . TO REDUCE AIR COSTS!

Horsepower savings . . . lubrication economy . . . less wear and tear on air hoses and air tools . . . all these advantages are yours with the *cool-running* Gardner-Denver "RX" compressor.

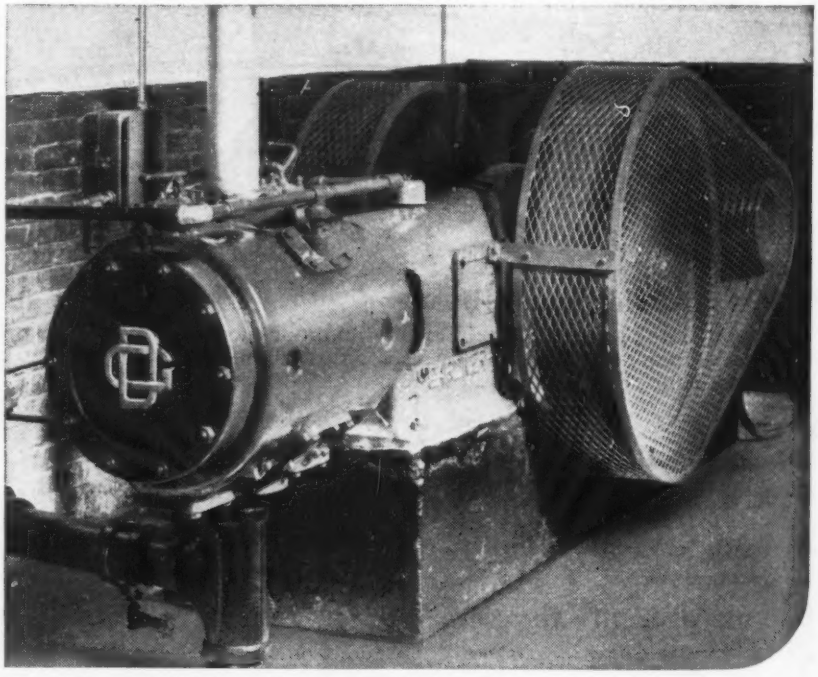
Complete jacketing of all valves, air passages and cylinder heads plus large and unrestricted valve and port areas of this Single-Stage Horizontal Compressor reduce the heat of compression, insure minimum oil consumption and increase compression efficiency.



Cross-section of cylinder showing jacketing and large port areas.

OTHER "RX" ADVANTAGES

1. **Additional horsepower savings because air is automatically regulated to fit your needs.**
2. **Rugged dirt-free main frame assures long life . . . minimum maintenance.**
3. **Positive flood-type lubrication assures ample lubrication of all moving parts.**
4. **Duo-Plate "cushioned" valves are simple, durable, and quiet in operation.**
5. **Smooth, vibration-free operation assured by counterweighted crankshaft and Timken tapered roller bearings.**



For complete information on Gardner-Denver "RX" Single-Stage Horizontal Compressors, write Gardner-Denver Company, Quincy, Illinois; Atlanta, Ga.; Birmingham, Ala.; Boston, Mass.; Hazleton, Pa.; Knoxville, Tenn.; Washington, D. C.; New York, N. Y.; Philadelphia, Penna.; Pittsburgh, Penna.

GARDNER-DENVER *Since 1859*

UNEQUAL COMPETITION...
May Be Disastrous

From the very day of its birth, any product.... and any package.... is in danger of becoming slowly or suddenly obsolete. Competition with a more modern product or package may be disastrous.

Do not let easy wartime selling give you a false sense of security. If your packaging has not been re-examined during the past year, let us do it for you and make the necessary recommendations.

Call On

OLD DOMINION BOX COMPANY

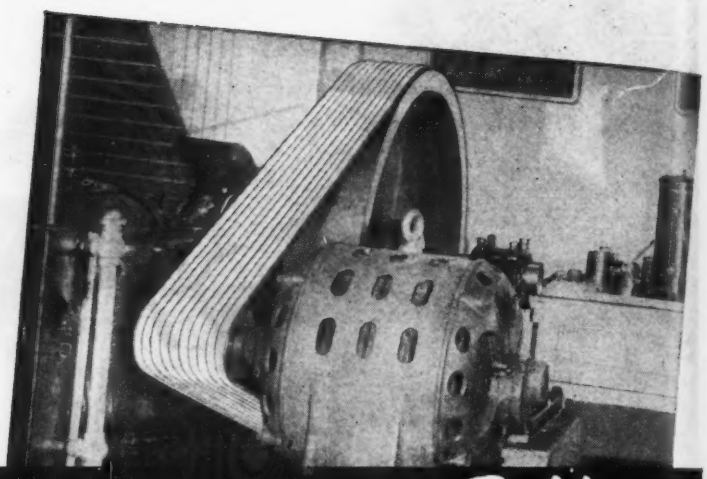
CHARLOTTE, NORTH CAROLINA

PLANTS IN TEN SOUTHERN CITIES

Folding Cartons • Set-Up Boxes • Convolute • Spiral Wound and Corrugated Containers

"THE SOUTHERN BOXMAKER WITH A NATIONAL REPUTATION"

New York Representatives, BAKER PRESS 228 East 45th St., New York 17, N. Y., Murray Hill 2-6492



An Important Fact

GATES Synthetic Rubber V-Belts

—are TODAY Giving BETTER SERVICE Than ANY V-Belts Built Before the War!

And the Reason for it

When our Army's tanks, tractors and self-propelled big guns were being built, it was found that no V-Belts built by anyone before the war could stand the service that is now being delivered on the battlefield by V-Belts that Gates has developed especially for these heavy combat units. And Gates is building these V-Belts entirely of synthetic rubber.

* **The fact that Gates developed these belts—and is building them of synthetic rubber—is important to you now because every improvement developed by Gates for these Army belts has also been added, day by day, to the quality of the Standard Gates Vulco Ropes which are being delivered to you.**

As you know, wartime improvements in many other products must be withheld from general use until after the war is won—but victory depends so directly upon production, and production so directly upon V-Belts which drive the producing machines, that Gates has been able to give you immediately in your Standard Gates Vulco Ropes, every V-Belt improvement which Gates specialized research has developed for use on the Army's motorized equipment.

These are the simple reasons why you are finding that your Standard Gates synthetic rubber Vulco Ropes are today giving you better service than any V-Belts that were ever built before the war.

THE MARK OF Gates SPECIALIZED RESEARCH

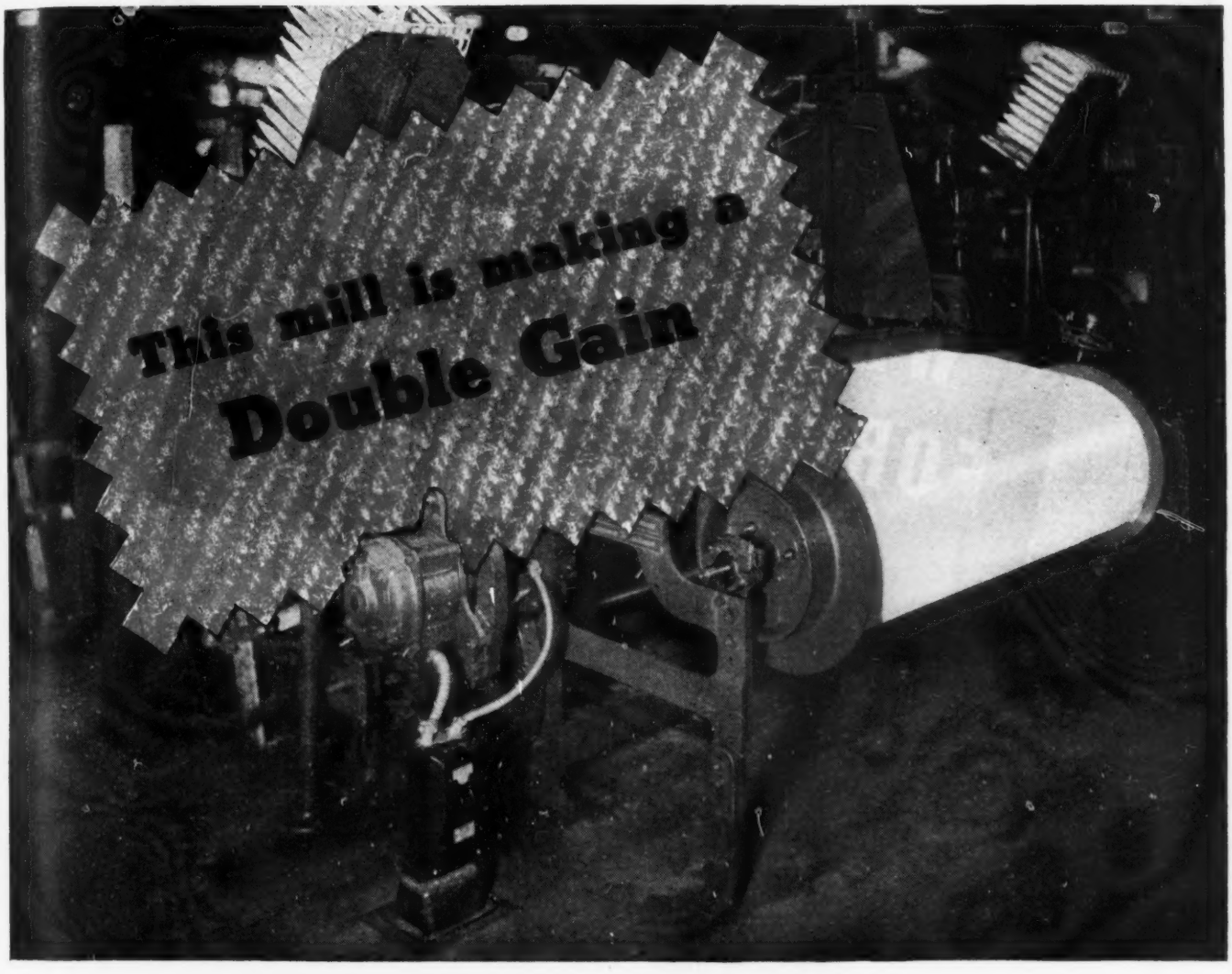
THE GATES RUBBER COMPANY

Engineering Offices and Jobber Stocks in All Large Industrial Centers

453

GATES VULCO ROPE DRIVES

CHICAGO 6, ILL., 549 West Washington DALLAS 2, TEXAS, 1710 N. Market Street ATLANTA 3, GA., 738 C & S National Bank Building
CHARLOTTE 2, N. CAROLINA, 605 West Fifth St. NEW YORK CITY 3, 215-219 Fourth Ave. DENVER 17, COLO., 999 South Broadway
GREENVILLE, S. CAROLINA, 108 W. Washington Street BIRMINGHAM 3, ALA., 801-2 Liberty National Life Bldg.



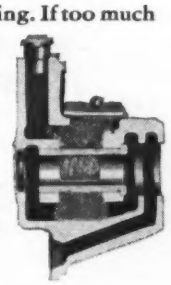
By using Westinghouse loom motors, this mill is enjoying a double saving. In the first place, motor maintenance is held to a minimum. And that means less time out and more time for production. Maintenance costs are reduced because this motor is built especially rugged to withstand the heavy vibration of loom operation. That means extra strength and longer life.

The second saving this mill is making is in power costs. Westinghouse loom motors are designed for unusually high efficiency. Proper relation of rotor weight helps this motor "iron out" some of the peak loads occurring at high frequency in loom drives. The result—increased over-all efficiency and minimum power costs.

With this motor on the job, you can be sure of meeting the strains imposed by new looms before they are "broken in". Ask your Westinghouse representative to give you all the facts. Westinghouse Electric & Manufacturing Company, East Pittsburgh, Pa. J-94615

NO STARVED BEARINGS
NO OVER-OILING

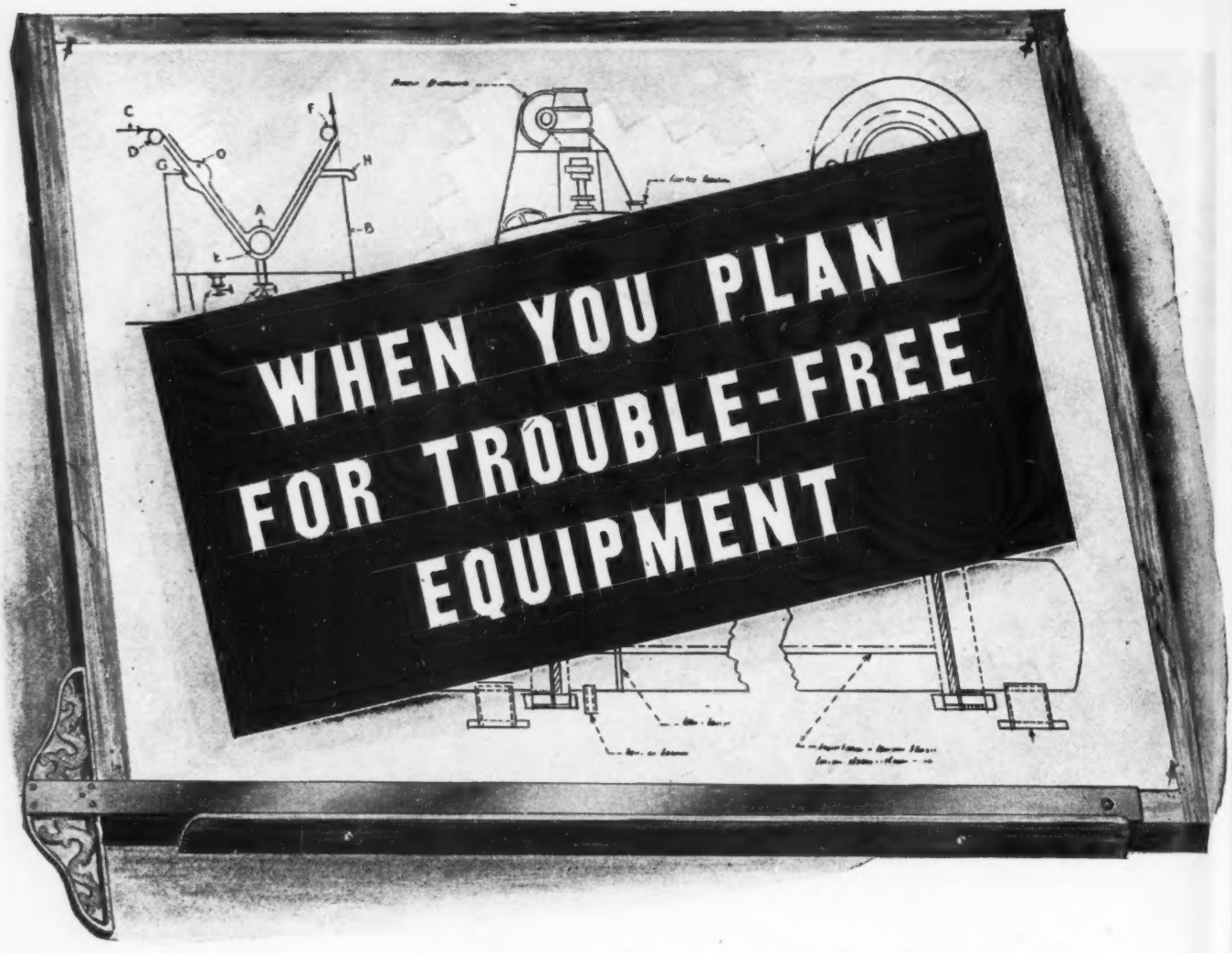
Westinghouse design eliminates both the danger of wicking of oil from motor bearing housings and waste from excessive oil. Oil cups are located far enough above the bearing to prevent accumulation of lint from wicking oil from housing. If too much oil is added, overflow drains excess oil outside the end brackets.



Showing construction of Westinghouse loom motor lubrication system.

Westinghouse
PLANTS IN 25 CITIES . . . OFFICES EVERYWHERE

Loom Motors



On drafting boards in the textile industry, designs for new equipment are taking shape.

For kettles and tanks . . . vat linings, rolls and heating coils . . . for hoppers, reels and other dyeing and bleaching equipment, corrosion resistant Monel is specified . . . time after time.

Through more than 25 years of experience with this strong, tough alloy, textile manufacturers have found that it retains a smooth, hard finish *even after years of contact with salt, alkalies, acids and dye liquors.*

Monel lessens the danger of off shades. It does not absorb dyes . . . has a minimum effect on colors. Cleaning is quick and easy . . . no boil out is necessary.

In addition, Monel is readily fabricated. It may be welded, soldered, brazed, machined, drawn or forged by any of the commonly used methods.

Although today's stock is not large, some standard mill forms—sheet, rods, tubes, angles and wire—are available. A limited selection of bolts, screws, rivets, cotter pins and chain . . . as well as cast fittings and pump parts . . . may also be obtained for repair or replacement purposes.

After war needs have been met, Monel will be generally available. Specify it in your plans for new equipment.

THE INTERNATIONAL NICKEL COMPANY, INC.
67 Wall Street **New York 5, N. Y.**

5 MORE REASONS WHY MONEL IS SPECIFIED

High strength and fatigue resistance facilitate improved designs.

High strength and resistance to corrosion lengthen equipment life . . . reduce maintenance expense and downtime.

Takes on high polish in use . . . no roughness to snag or tear fabrics.

Unaffected by most of the commonly used dyestuffs.

Eliminates possibility of rust damage.

Monel

SAVES TIME . . .

AND MONEY . . .

That's the Surfax story in four short words. Surfax is the name given to Houghton's series of surface active agents used for wetting out, wetting back, penetrating, dye-bath leveling, sanforizing assistant—wherever yarns or fabrics are wet-processed.

Surfax is *concentrated;* you don't need to use as much to get speedy wetting action. That's why it saves time and money.

Compare it with other surface-active agents offered you, on a strict money-value basis, and see why so many mills have turned to Surfax—a development of Houghton textile research.

HOUGHTON'S

E. F. HOUGHTON & CO.
PHILADELPHIA and CHARLOTTE

SURFAX

FOAMGLAS INSULATION — is permanent insulation

THE only material of its kind, PC Foamglas is waterproof, vaporproof, fireproof. It has licked the toughest insulation jobs — on roofs, in walls, floors and equipment —in all sorts of plants, all over the country.

Moisture, acid atmospheres, fumes, can't break down the cellular structure of PC Foamglas Insulation. It is made of glass. Its insulating qualities remain unchanged throughout the life of structures in which it is installed.

Freedom from repairs and replacement makes PC Foamglas an exceptionally economical insulating material in the long run.

When you are facing insulating problems, get authoritative, complete information on PC Foamglas. Check the convenient coupon now and mail it in. We shall be glad to forward free copies of the booklets you select. Pittsburgh Corning Corporation, 632 Duquesne Way, Pittsburgh 22, Pa.

· *Also Makers of PC Glass Blocks* ·

In the Holeproof Hosiery Company's throw room, rigid control of relative humidity and temperature must be maintained, condensation prevented. PC Foamglas Insulation licked this tough problem.

This concrete floor, insulated with PC Foamglas, is being laid to insure comfortable working temperatures. It will prevent downstairs heat from penetrating this room through the floor.

FIRST COST IS LAST COST

PC FOAMGLAS *Waterproof Fireproof* **INSULATION**

Pittsburgh Corning Corporation
Room 620, 632 Duquesne Way
Pittsburgh 22, Pa.

Please send along my free copies of the booklets on PC Foamglas Insulation checked below.

Roofs ☐; Walls ☐; Floors ☐

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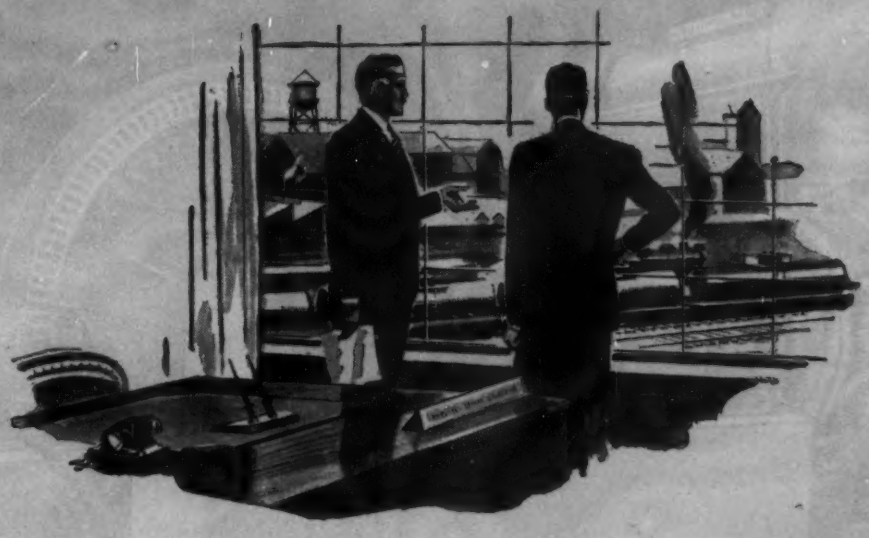
"Columbia makes our job easier..."

. . . says the Traffic Manager



Wartime transportation peaks have created many problems for manufacturers dependent on the steady flow of chemicals to their plants. Columbia's efficient Traffic Service has done much to minimize these problems for its customers, and to ease their traffic supervision tasks. That's why many a Traffic Manager is in full accord with his company's policy of favoring Columbia as its source of chemical supplies.

By their efficient handling of an unprecedented volume of traffic, the freight carriers have earned the thanks of the entire nation. They stress, however, the importance of the co-operation they have received from their customers. The job has indeed been so vast and so outstandingly successful that all Traffic men—both those employed by carriers and by their customers—can take pride in their contribution to America's war effort.

COLUMBIA CHEMICALS

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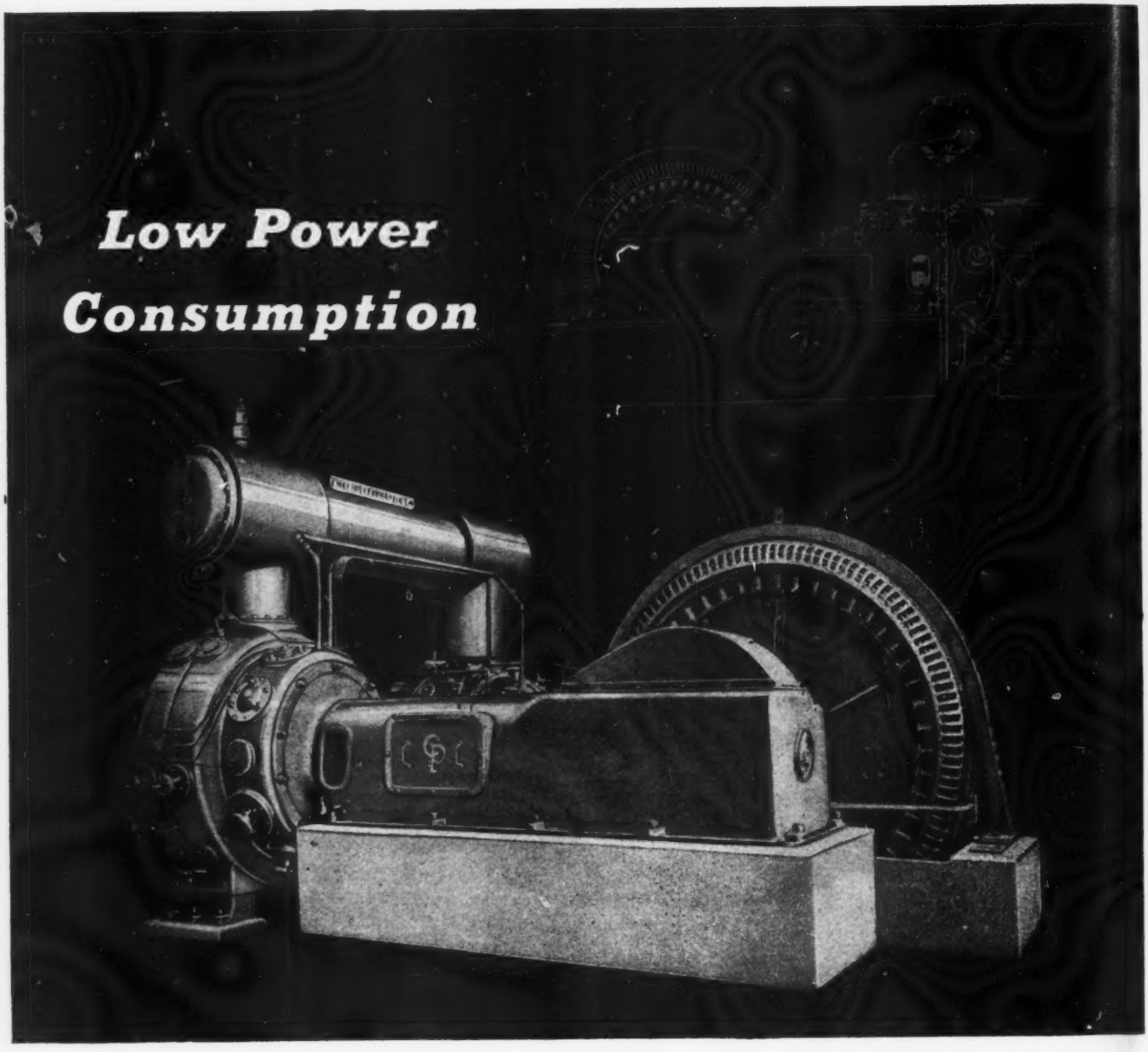
COLUMBIA ESSENTIAL INDUSTRIAL CHEMICALS

Soda Ash • Caustic Soda • Sodium Bicarbonate • Liquid Chlorine • Silene EF (Hydrated Calcium Silicate) • Calcium Chloride • Soda Briquettes
Modified Sodas • Caustic Ash • Phosflake • Calcene T (Precipitated Calcium Carbonate) • Calcium Hypochlorite



BUILT INTO CP CLASS O-CE COMPRESSOR

THE low power consumption of the heavy-duty Chicago Pneumatic Class O-CE Compressor is the result of large area, durable, quick-acting Simplate valves . . . streamlined air passages . . . multi-step capacity regulation . . . thoroughly effective intercooling and water jacketing and efficient lubrication.

CP Class O-CE Compressor is of the horizontal, double-acting, water-cooled type with direct-mounted synchronous motor drive. Capacities range from 350 c.f.m. to 10,000 c.f.m., 80 pounds to 125 pounds pressure. Other sizes available for lower and higher pressures and for other types of drive. Write for Bulletin 726.

★★★★★★★★★
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ELECTRIC TOOLS
HYDRAULIC TOOLS
ROCK DRILLS

CHICAGO PNEUMATIC
TOOL COMPANY
General Offices: 8 East 44th Street, New York 17, N. Y.

★★★★★★★★★
AIR COMPRESSORS
VACUUM PUMPS
DIESEL ENGINES
AVIATION ACCESSORIES

...and after installation, you can forget a SEALEDPOWER MOTOR

The Crocker-Wheeler **SEALED-POWER** Motor makes the maintenance man's job easy. Here's why:

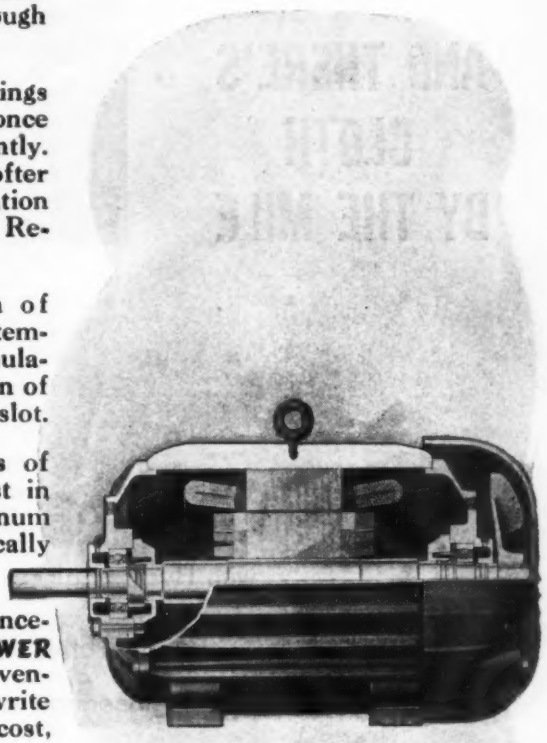
1. The totally-enclosed frame seals out harmful foreign matter. There is no danger of oil, corrosive liquids, acid or alkali fumes, air-borne moisture, steam, conducting dusts or metal chips, for example, causing premature breakdown of windings.

2. There are no ventilating passages in the frame to require periodic cleaning. Cooling air is blown over the outside surfaces of the motors, not through the frame.

3. Patented *Grooveseal* bearings require re-greasing only once a year or even less frequently. Seal permits use of softer grease, for better lubrication and longer bearing life. Retains grease.

4. Vacuum impregnation of windings reduces hotspot temperature and lengthens insulation life. Prevents vibration of wires inside or outside of slot.

5. Bars, fans and end rings of *Alucast* rotor are die cast in one operation from aluminum alloys, forming a practically indestructible rotor.



And yet, with all these maintenance-cutting advantages, **SEALEDPOWER** Motors cost no more than conventional fan-cooled types. Why not write for descriptive literature? No cost, no obligation.

CROCKER-WHEELER

A Division of JOSHUA HENDY IRON WORKS

AMPERE, NEW JERSEY

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Rollers Roll

AND THERE'S CLOTH BY THE MILE

BEARINGS: *HYATT*

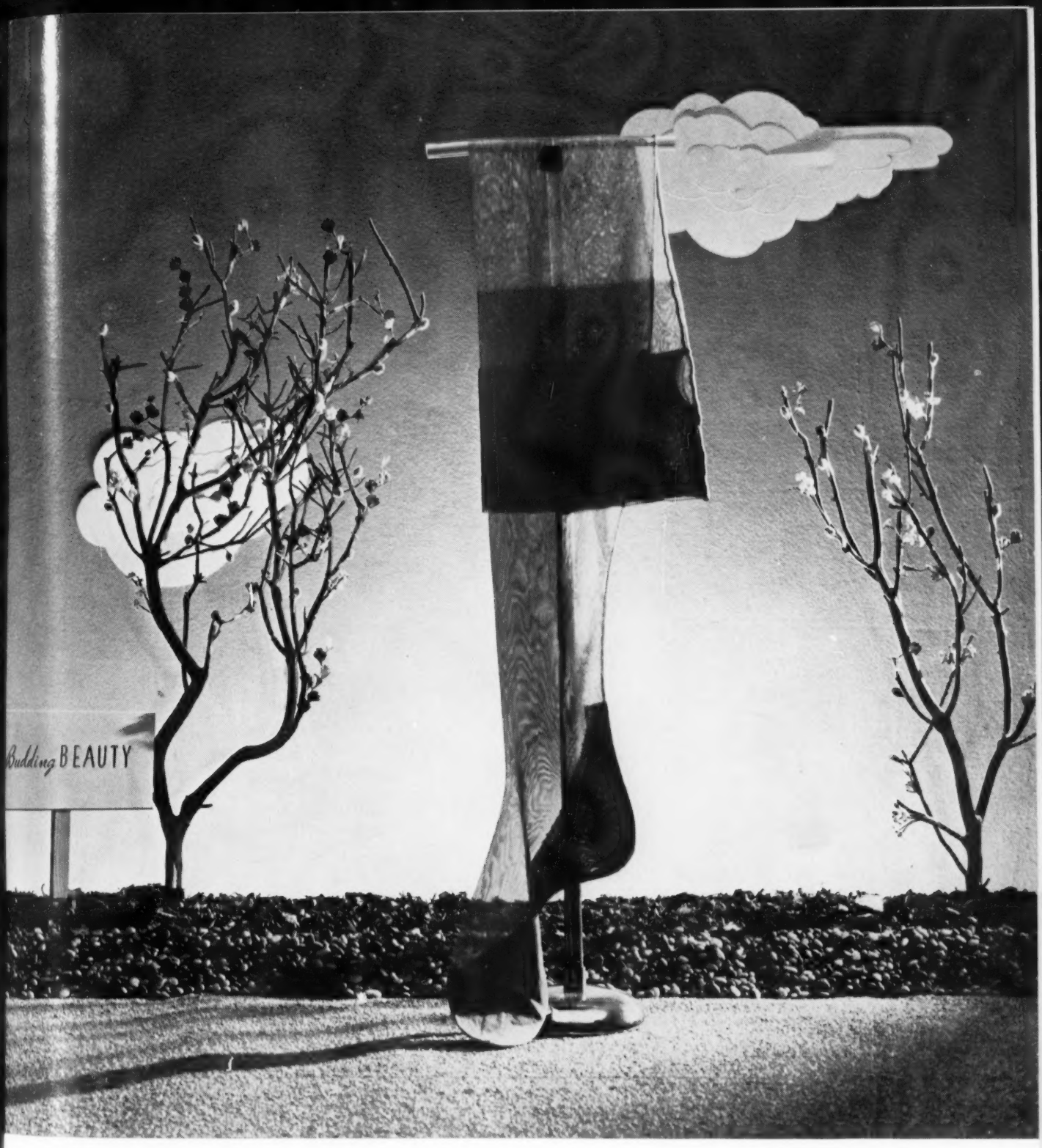
Designers and builders of textile machinery have for many years consulted freely with Hyatt engineers regarding anti-friction problems.

Mill operators too have taken advantage of Hyatt's half-century of experience and engineering research.

Throughout the textile industry, Hyatt Roller Bearings are helping preparatory, weaving and finishing machinery to perform smoothly and steadily—to reduce maintenance costs—and speed urgent production of vitally needed fabrics.

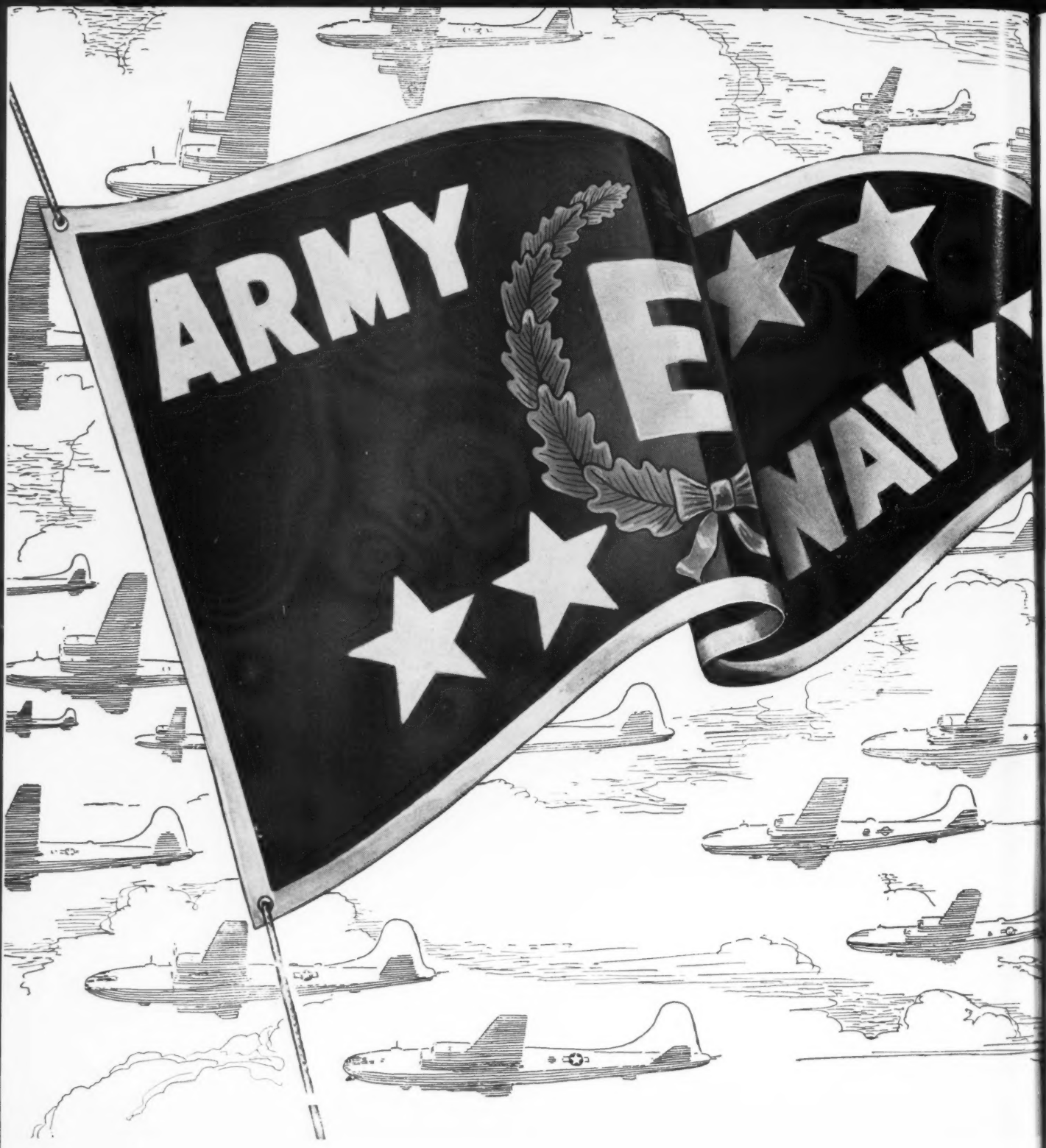
HYATT BEARINGS DIVISION • GENERAL MOTORS CORPORATION • HARRISON, NEW JERSEY

Friction goes out when HYATT goes in!



Budding Beauty . . . The clear loveliness of even-textured, full-fashioned stockings is the beginning of a beautiful ensemble. Every full-fashioned stocking manufacturer knows that flawless stockings depend on the needles used to knit them. Keep your Knitting Machines young and effective with TMW Needles . . . *And remember: Regular Reneedling Pays! Let us put your needle bars in shape for faster, more accurate, more profitable knitting.*

TEXTILE MACHINE WORKS • READING, PA.



THE WAR DECORATIONS OF TEXTILE MACHINE WORKS

Bur. of Ord. Flag and Navy "E"
July 25, 1941

One Star All-Navy "E" Burgee
January 25, 1942

Two Star Army-Navy "E"
July 25, 1942

Three Star Army-Navy "E"
January 25, 1943

Four Star Army-Navy "E"
January 11, 1944

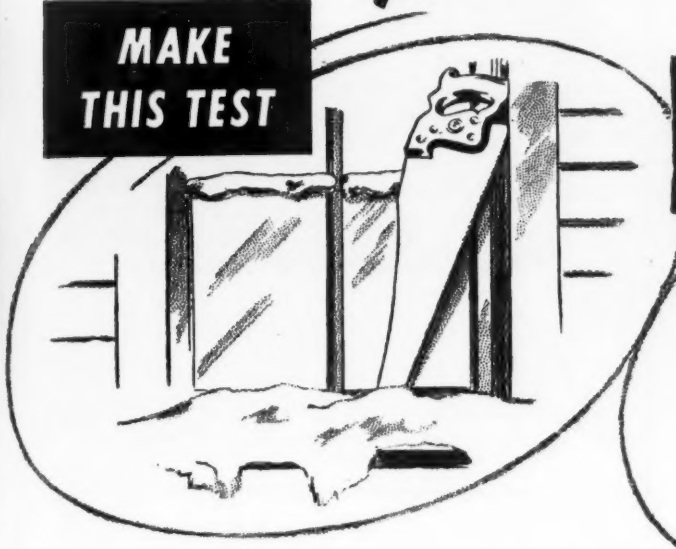
4-star Performance for Peace-time Production

For more than four years the makers of Reading Full-Fashioned Knitting Machines have been building precision instruments for the armed forces — on land, on sea, in the air! . . . Directors, computors, aiming devices, fuse setters, gun controls — instruments that require machining up to one ten-thousandth of an inch and with all parts interchangeable! . . . We have learned much in the development and production of these instruments — lessons in accuracy and control — and much that we have learned will be incorporated in designs and patterns for new and better Reading Full-Fashioned Knitting Machines. Production on these new machines will start when war conditions permit.

TEXTILE MACHINE WORKS • READING, PA.

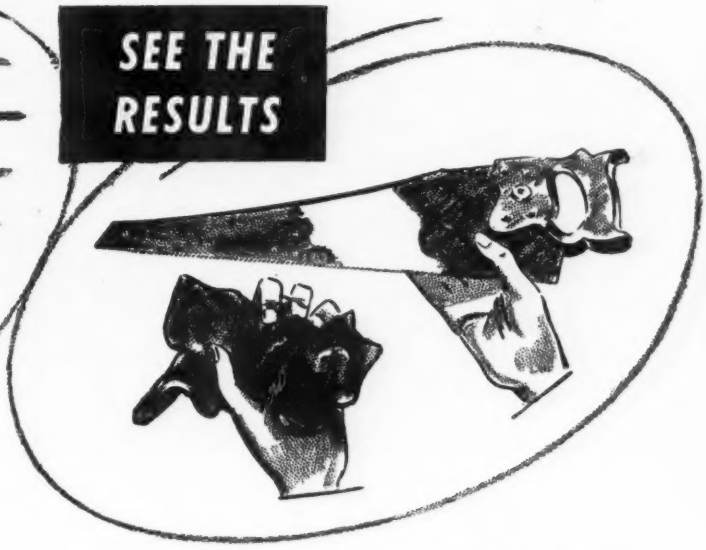
How to *prevent* Corrosion

MAKE THIS TEST



Coat a section of any piece of raw metal with a protective film of Anti-Corrode. Place it out-of-doors, and leave exposed to the elements.

SEE THE RESULTS



Rain, snow, changing temperature, dust and grime have eaten into and oxidized the unprotected metal. But note surface under Anti-Corrode film—bright and unharmed, in its original state.

CITIES SERVICE **ANTI-CORRODE** is a safe rust and corrosion preventive that brings amazing results. It is a reliable safeguard against corrosion of metals in any form or state of finish—whether in storage or in transit. Anti-Corrode forms a tenacious, durable film that is impervious to moisture and the more common gases prevalent in the atmosphere. And, since it contains lubricating material, it need not be removed in drawing operations. Anti-Corrode is made in several grades to meet specific requirements and severest tests. It is economical, easy to apply and can be removed with kerosene or any petroleum solvent.

This TEAM Will Save You Money and Materials

Recently, we announced the development of Cities Service Rust Remover, and responses to the demonstration offer far exceeded our expectations. Rust Remover, of course, *removes* rust. Anti-Corrode is designed to *prevent* rust and corrosion. Together, they will safeguard your equipment and war production—for the duration!

Take advantage of this FREE ANTI-CORRODE demonstration offer
Mail this coupon today!

(Available only in Cities Service marketing territory EAST of the Rockies.)

CITIES SERVICE OIL COMPANY
NEW YORK · CHICAGO
OF THE SOUTH
ARKANSAS FUEL OIL COMPANY
SHREVEPORT, LA.

CITIES SERVICE OIL COMPANY
Room 241, Sixty Wall Tower, New York 5, New York

Gentlemen: I would like to test Anti-Corrode on my own equipment FREE OF CHARGE. Please send me the details.

Name _____

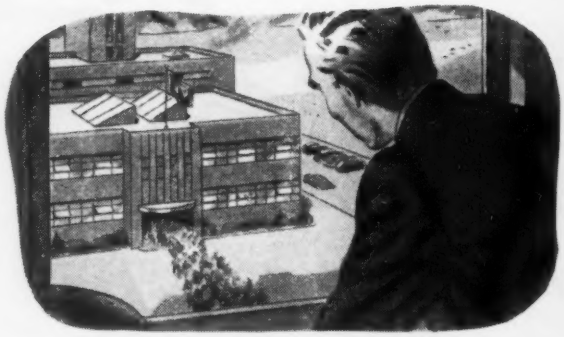
Company _____

Address _____

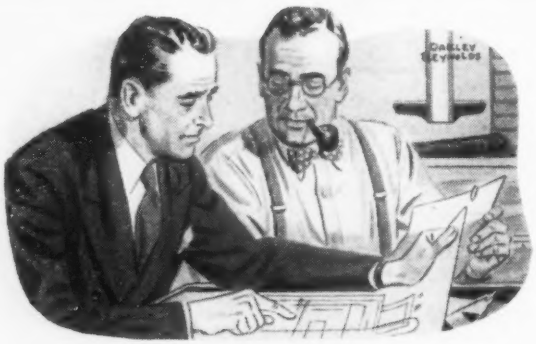
City _____ State _____

So Smith joined the parade

1 Smith hired many well-trained workers,
But they never seemed to stay.
No one could have called them shirkers—
Jobs were fine, so was the pay.



2 While at Johnson Brothers' factory
Jobs were hard to get—and prized.
Workers found things satisfactory;
Johnsons' had been modernized.



3 Did Smith take a long shellacking
'Ere he copied Brothers J?
No, he added what was lacking
And his air's *correct* today.

Correct Air Conditioning pays because it contributes importantly to higher working efficiency and improves the quality of many products. It is the result of the scientifically-engineered blending of correct temperature, humidity, circulation, ventilation and air cleanliness.

Depend upon Westinghouse engineering experience, research and equipment for correct air conditioning for *your* establishment.

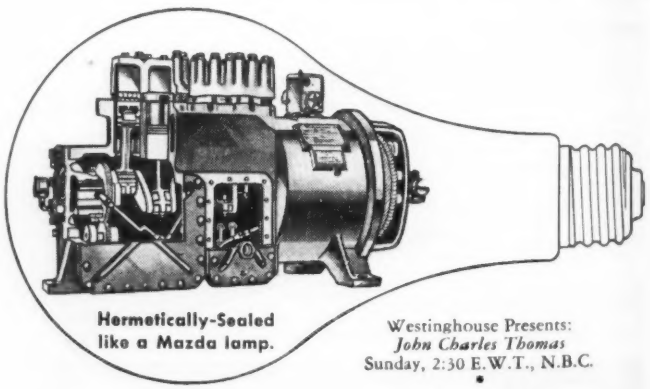
Consult Westinghouse early in the planning of your new or modernized buildings. Phone your nearest Westinghouse office, or write Westinghouse, 150 Pacific Avenue, Jersey City 4, N. J.

THE SERVICE-PROVED HERMETICALLY-SEALED COMPRESSOR

These Westinghouse economy-satisfaction advantages have been proved by years of service in thousands of installations:—

No Shaft Seals. During wartime refrigerant shortages, few Westinghouse systems were ever "down." Why? Because seal leaks, cause of 90% of all system failures, are eliminated.

Few Parts to Wear . . . Direct-Drive Efficiency . . . Space-Saving Refrigerant-Cooled Motor.



Hermetically-Sealed like a Mazda lamp.

Westinghouse Presents:
John Charles Thomas
Sunday, 2:30 E.W.T., N.B.C.

Westinghouse CORRECT Air Conditioning

PLANTS IN 25 CITIES . . OFFICES EVERYWHERE

With Geon it's the *combination* of properties that counts

THE processor who coated this strong, lightweight fabric with Geon really "made something of it". For with the application of one of these new Geon polyvinyl raw materials, he created a fabric that is waterproof and stays flexible over a wide range of temperatures. It resists oils, acids, alkalies, mildew, heat, cold, abrasion, wear, aging, sunlight and many other destructive factors. It's odorless, tasteless, non-toxic. It could just as well have been brilliantly—or softly—colored.

These are just a few of the more than 30 distinct properties which may be had in an almost limitless number of combinations in products made of GEON—and each *combination* of properties can be *planned* to meet specific needs. This particular fabric could be made into shower curtains, rain wear, refrigerator bowl covers and a dozen —or a hundred—other products.

But it's just one example of what can be done with these new raw materials. For in addition to serving as fabric or paper coatings the GEONS can be calendered or cast into sheet or film. They can be extruded, pressure or injection molded. Products made of GEON may be flexible or rigid. Doesn't all this suggest some new—or old—product that *you* want to make out of GEON?

Right now all the GEONS are subject to allocation by the War Production Board. Limited quantities can be had for experiment. For more complete information write Department HH-2, Chemical Division, The B. F. Goodrich Company, 324 Rose Building, Cleveland 15, Ohio.

Geon
Polyvinyl Materials

CHEMICAL DIVISION
The B. F. Goodrich Company
324 ROSE BUILDING • CLEVELAND 15, OHIO

NEW METALS WEIGHT CALCULATOR

Lightning-fast . . .

Accurate

A REAL TIME-SAVER

Engineers report that, besides facilitating absolute accuracy, the Reynolds *Metals Weight Calculator* saves up to 90% of the time ordinarily required to consult tables and make calculations.

REYNOLDS METALS

***Yours*...with the compliments of**

REYNOLDS ALUMINUM

Here is one of the handiest calculating devices ever developed.

All the answers INSTANTLY. Everyone who works with metals will find this instrument invaluable.

It does the work for you, saves up to 90% of the time and effort on weight calculation. All you need to do is make the settings—then read the results. Serves equally well with aluminum, steel, brass, copper, magnesium, and nickel.

The Reynolds *Metals Weight Calculator* is a convenient, durable, vestpocket-sized instrument, measuring only 3″x8¾″. With a flip of the finger, weights are calculated from cross-sectional dimensions and length as accurately as from published tables of theoretical weights. It can also be used to determine lengths from cross-sectional dimensions and weight.

Scales included are sheet, strip and plate; round wire and rod; square, hexagonal, octagonal and rectangular bar; tubing; and sheet circles. Range of instrument—from .0006 lbs. to 3000 lbs.—from an infinitesimal-sized piece of metal to a giant bar.

If you work with metals, you will find this Reynolds *Metals Weight Calculator* very helpful. Mailed post-free upon request, in a protective wrapping. Reynolds Metals Company, Aluminum Division, Louisville, Kentucky.

Our supply is limited; so please fill in and *MAIL TODAY*

Reynolds Metals Company, Aluminum Division
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Please send me, without charge, a Reynolds *Metals Weight Calculator*

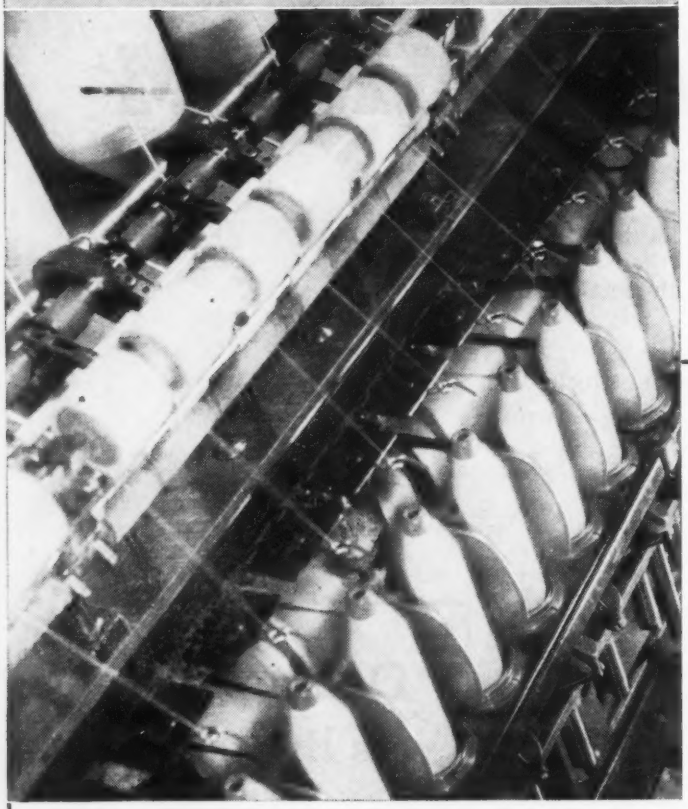
Name_____ Title_____

Company_____

Street_____

City_____ Zone_____ State_____

Gulfgem Oil is Alchlor Processed——



protects spindles against wear and gumming

Superrefining more effectively removes chemically active hydrocarbons — helps insure superior lubricating value and long life.

BETTER SPINDLE LUBRICATION means less wear, fewer bolster renewals, and reduced end breakage! That is why hundreds of leading mills specify Gulfgem Oil for spindles—they know from experience that this Alchlor-Processed Oil helps keep poundage up and maintenance costs down.

Superrefining by the Alchlor Process puts Gulfgem Oil in a class by itself as a spindle lubricant—gives it the superior lubricating value and long life that insures maximum operating hours for spinning frames.

It will pay every mill to learn the full protective maintenance possibilities of this highest quality spindle lubricant. Ask the Gulf Service Engineer in your vicinity to give you complete details.

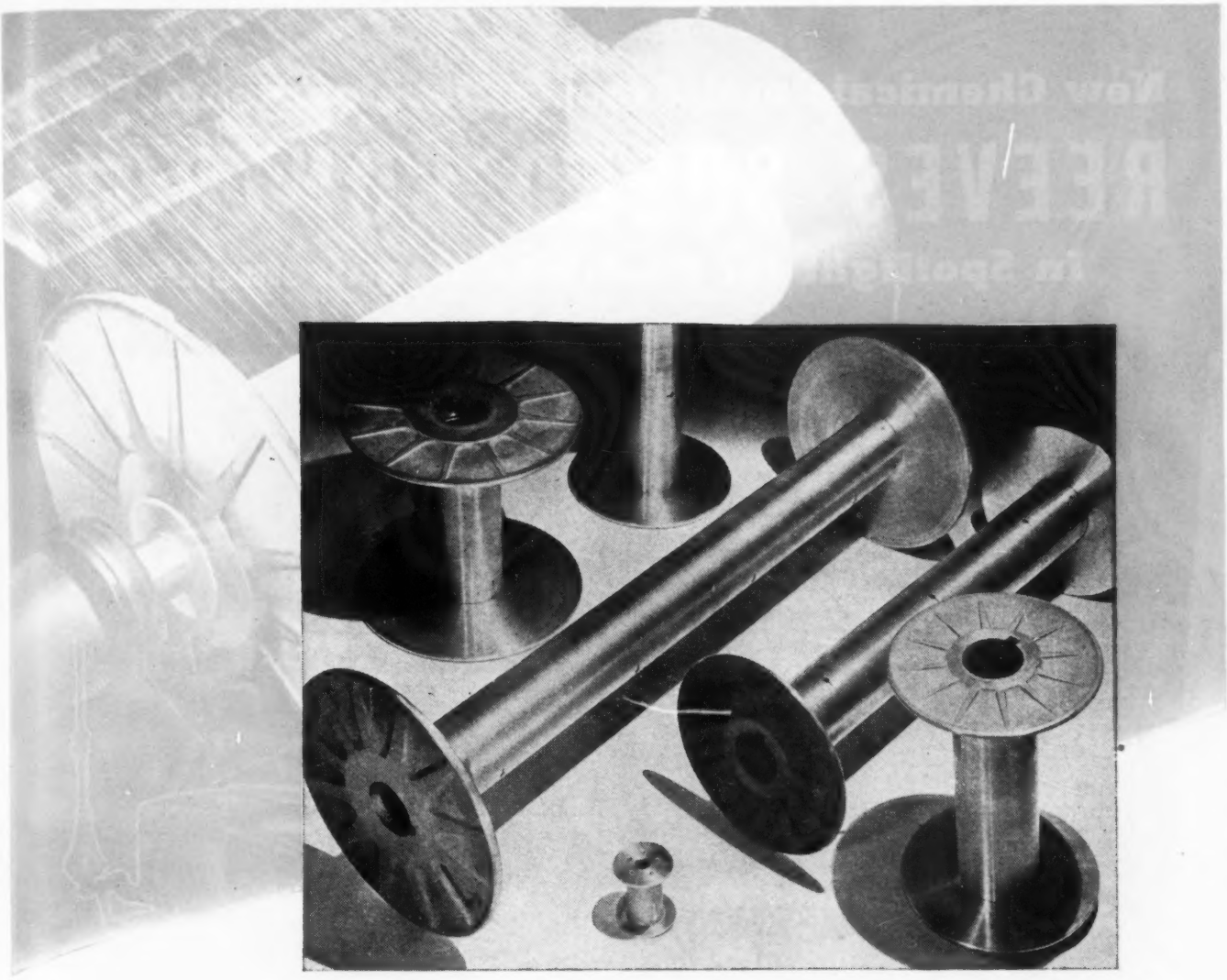
Gulfgem Oil—and the more than 400 other quality lubricants in the Gulf line—are available to you through 1200 warehouses located in 30 states from Maine to New Mexico. Write, wire, or phone your nearest Gulf office today.

FOR VICTORY—
BUY UNITED STATES WAR BONDS AND STAMPS

GULF INDUSTRIAL LUBRICATION

GULF OIL CORPORATION · GULF REFINING COMPANY

GULF BUILDING, PITTSBURGH 30, PA.



WARP BEAMS BY AMERICAN MAGNESIUM

STRONG . . . LIGHT . . . TRUE

Thousands of MAZLO Magnesium warp beams are serving the textile industry today.

In these magnesium warp beams, you have a combination of lightness, strength and precision. They run true and stay that way, so yarns run on and off evenly; no distortion with age. Warping speeds can be greatly increased.

Using lightweight magnesium warp beams will reduce shipping and handling costs. Less deadweight to pay for and less fatigue for the men who must handle them in the mill.

They are available in a number of different sizes and styles. We'll gladly send you further data and prices. Sales Agent, ALUMINUM COMPANY OF AMERICA, 1705 Gulf Bldg., Pittsburgh 19, Pennsylvania.

MAGNESIUM MAZLO PRODUCTS

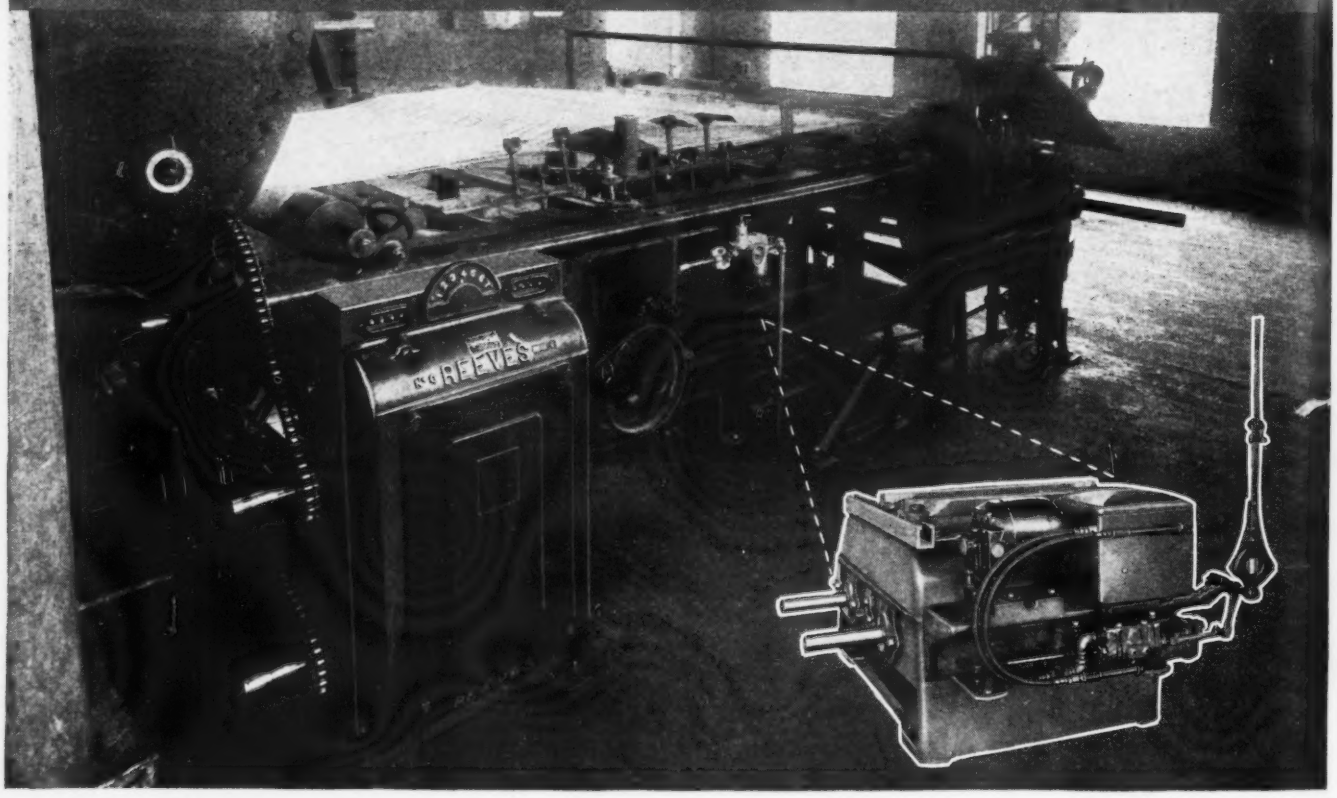
AMERICAN MAGNESIUM CORPORATION

SUBSIDIARY OF ALUMINUM COMPANY OF AMERICA

New Chemicals and Process Developments Put

REEVES SPEED CONTROL

In Spotlight for Post-War Requirements



IF THE textile industry is to take full advantage of the new developments of chemistry and engineering which have come about during this war, many improvements will be made in production processes.

New, light, synthetic yarns will not withstand old machine speeds and tensions. Speed control will be more important than ever—and its automatic regulation must be governed by *ounces—instead of pounds* of pull on the cloth. Speeds must be infinitely variable and accurate. To accomplish all of this, REEVES offers fully proved, mechanical variable speed units automatically adjusted by sensitive hydraulic control to maintain constant tension and velocity in continuous processes. No other method combines all the factors of simplicity, safety and sensitivity that post-war textile manufacture will demand. Write today for full information on REEVES Speed Control contained in 128-page catalog W-450.

REEVES PULLEY COMPANY • COLUMBUS, INDIANA

REEVES Speed Control

Recognized Leader In the Specialized Field of Speed Control Engineering

Above Photo: Slasher equipped with REEVES Variable Speed Transmissions at three critical points for accurate control of moisture, stretch and tension. Side view pictured shows application of vertical design Transmission for stretch control. Also shown is horizontal design Transmission with REEVES Hydraulic Automatic Control, which regulates loom beam drive. This maintains a constant yards-per-minute surface speed as beam builds up in diameter. Constant tension on yarn results in beam of uniform density. Reduces yarn stretch in slasher to less than 1%.

Inset—REEVES HYDRAULIC AUTOMATIC CONTROL: A highly sensitive control which requires a very small operating force—only 2 or 3 ounces—from an indicating element to produce speed changes. Actuated by an indicating lever which may be attached to any element or part of driven machine from which indication of required speed may be taken. Back lash, "coasting" and "hunting" are positively prevented.

The same...

high quality at low cost

consistently maintained

in peace and war

LYKOPON

SODIUM HYDROSULFITE

LYKOPON *is a trade-mark, Reg. U. S. Pat. Off.*

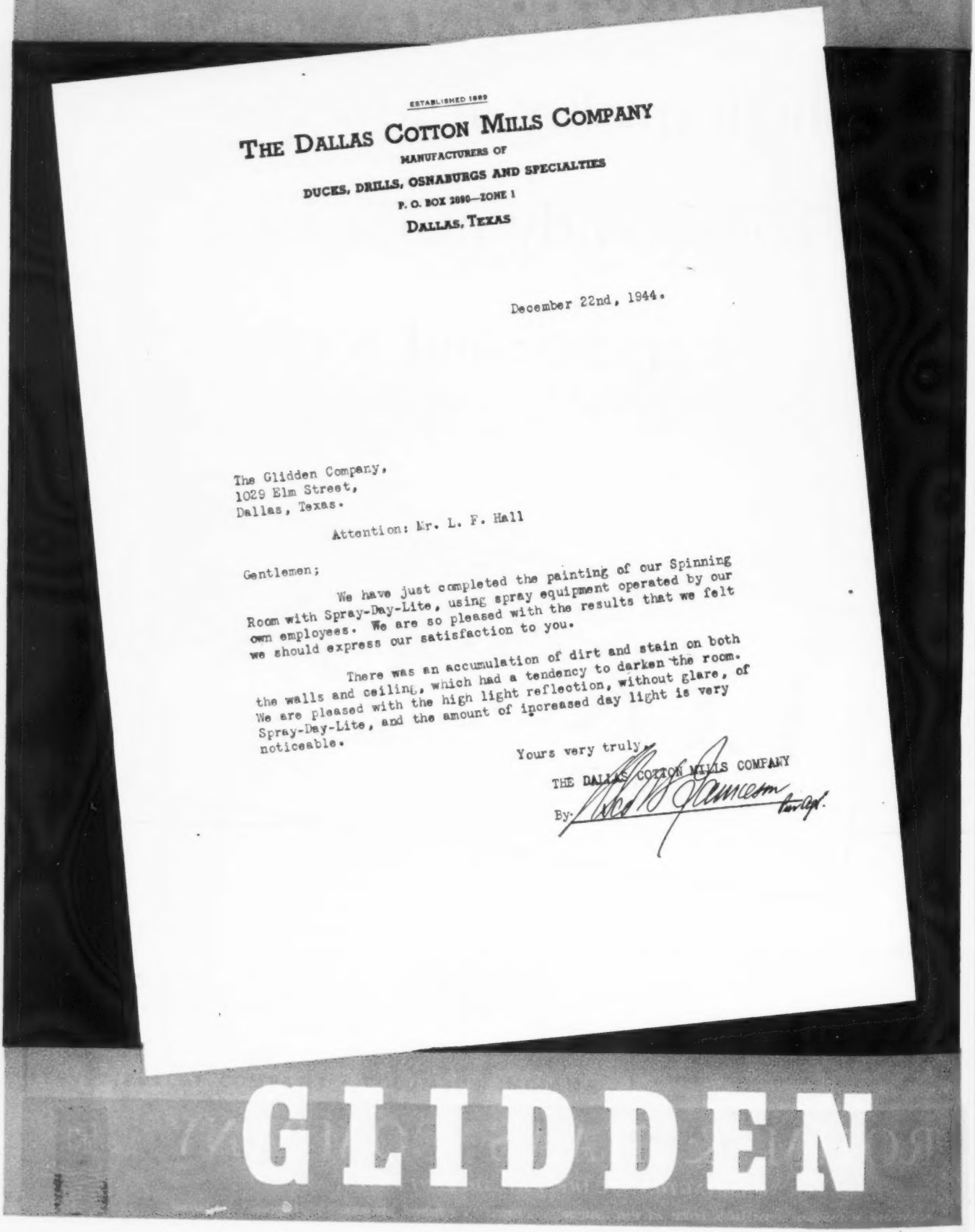
3 awards to Rohm & Haas Company and its associated firms, The Resinous Products & Chemical Company and Charles Lennig & Company.

ROHM & HAAS COMPANY

WASHINGTON SQUARE, PHILADELPHIA 5, PA.

Manufacturers of Chemicals for the Textile, Leather and other Industries . . . Plastics . . . Synthetic Insecticides . . . Fungicides . . . Enzymes

"Increased daylight very noticeable"
COTTON MILL PAINTS GLOOM



ESTABLISHED 1889

THE DALLAS COTTON MILLS COMPANY

MANUFACTURERS OF

DUCKS, DRILLS, OSNABURGS AND SPECIALTIES

P. O. BOX 2090—ZONE 1

DALLAS, TEXAS

December 22nd, 1944.

The Glidden Company,
1029 Elm Street,
Dallas, Texas.

Attention: Mr. L. F. Hall

Gentlemen;

We have just completed the painting of our Spinning Room with Spray-Day-Lite, using spray equipment operated by our own employees. We are so pleased with the results that we felt we should express our satisfaction to you.

There was an accumulation of dirt and stain on both the walls and ceiling, which had a tendency to darken the room. We are pleased with the high light reflection, without glare, of Spray-Day-Lite, and the amount of increased day light is very noticeable.

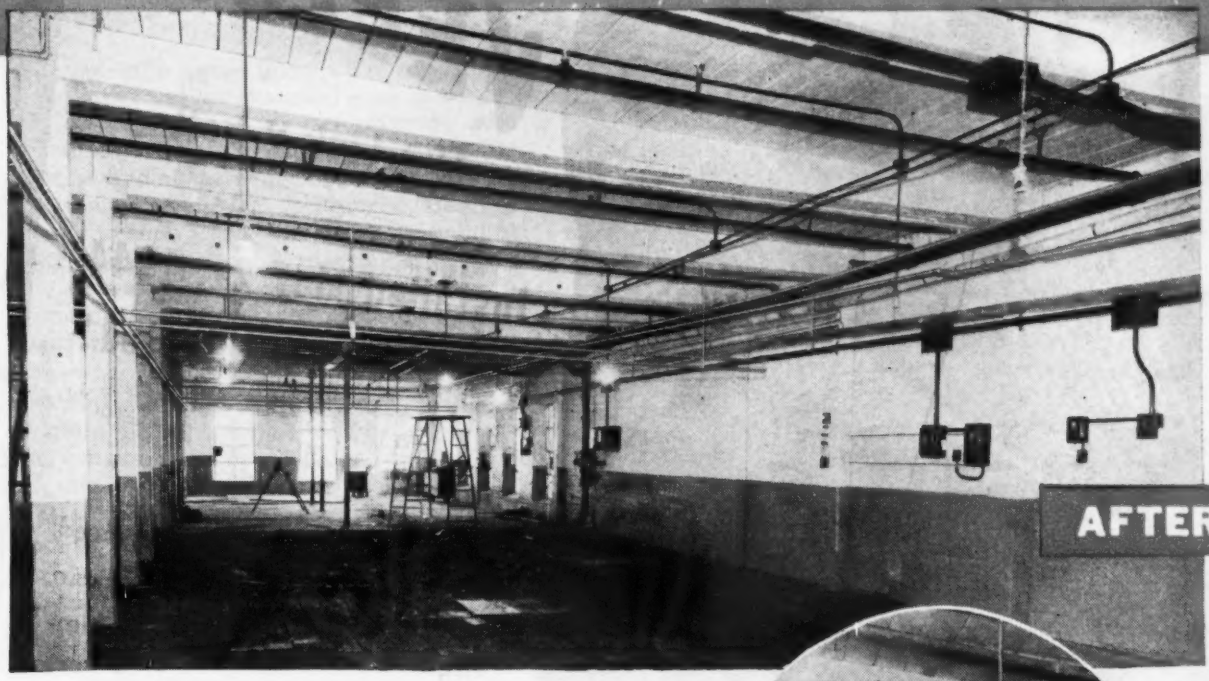
Yours very truly,

THE DALLAS COTTON MILLS COMPANY

By [signature] Treas.

GLIDDEN

AWAY WITH SPRAY-DAY-LITE



• These "before and after" photographs and the letter at the left tell a graphic story of the Dallas Cotton Mill's experience with SPRAY-DAY-LITE Maintenance Paint.

And throughout the textile industry, there's a growing swing to SPRAY-DAY-LITE *paint illumination.* Because this amazing paint provides maximum light reflection and diffusion, it drives gloom away, cuts down eyestrain, creates better working conditions, increases production.

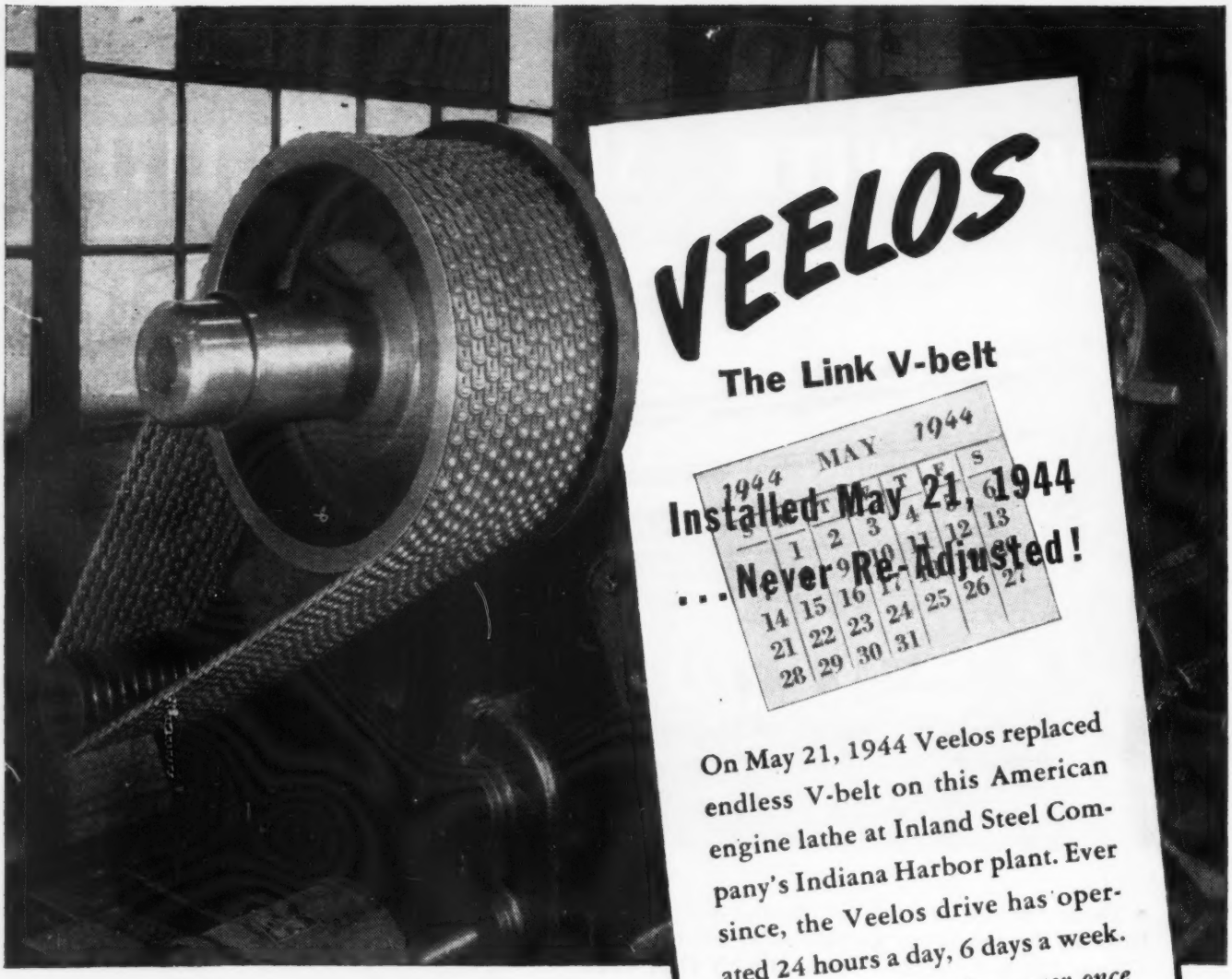
Over almost any surface, just one coat of this leading oil enamel maintenance paint, sprayed or brushed, gives conventional two-coat results. Its durable, eggshell finish eliminates glare—and washes like tile. Intense, lasting white and 10 beautiful colors to choose from.

Write for new SPRAY-DAY-LITE Color Chart which visualizes a wide range of pleasing color combinations. Ask also for demonstration of SPRAY-DAY-LITE in your plant by a Glidden engineer. Drop a line today to

THE GLIDDEN COMPANY • Cleveland 2, Ohio

TIME-TESTED

Pacemaker in Paints



VEELOS

The Link V-belt

Installed May 21, 1944
...Never Re-Adjusted!

On May 21, 1944 Veelos replaced endless V-belt on this American engine lathe at Inland Steel Company's Indiana Harbor plant. Ever since, the Veelos drive has operated 24 hours a day, 6 days a week. *Yet the Veelos belt has never once been re-adjusted.* That's a remarkable record!

In the Textile Industry...
as In the Steel Industry...
Link Construction Ups Production

Link construction of Veelos turned the trick at Inland... and link construction makes Veelos the most adaptable of V-belts for any drive. Quick, easy tension adjustment ends slippage ...keeps machinery running at full speed and productivity.

One drive of Veelos will point the way to production increases and power savings throughout your plant. Write today for free Veelos manual giving complete details.

MANHEIM MANUFACTURING & BELTING CO.
MANHEIM, PENNSYLVANIA

Simple as Buttoning a Shirt

Get the "hang" of it, and you'll couple and uncouple Veelos as easily as you button your shirt. This unique, link construction is the big reason why *production goes up when Veelos goes on.*

VEELOS
THE LINK
V-BELT
Adjustable to any Length
Adaptable to any Drive

AMERICA WANTS COMPETITION

Only American Initiative Can Preserve It in World Trade

AMERICANS generally agree upon what constitutes a desirable pattern of international economic relationships. We want an expanding world trade, with minimum recourse to government-imposed trade barriers and discriminatory trading arrangements, and offering ample scope for competitive private enterprise. Because they are necessary to such trade, we want also stability of exchange rates, and national currencies that are mutually convertible at least for the settlement of current accounts. We want, too, arrangements to facilitate long-term capital loans with security to the lender and advantage to the borrower.

Few other nations subscribe to these aims with enthusiastic conviction. Some reject them flatly as impractical under the conditions likely to prevail during the postwar period, or achievable only at prohibitive cost to their domestic economies.

Unless, therefore, we can formulate a practical and comprehensive program to carry out our aims, and convince other nations that we will take a sustained and responsible part in making it effective, the international trade of the world surely will be conducted under a system of exchange controls, bilateral agreements, cartel bargains, import quotas, and direct government purchasing arrangements that are the very antithesis of the competitive system that we favor.

To agree upon a concrete American **program,** and to convince other nations that it is to their advantage as well as ours to accept it, is a major task of economic statesmanship. It entails reversing a trend which has persisted since World War I, and which has been intensified during the depression years of the nineteen-thirties and by the exigencies of World War II.

Clearly, that is not a task to be assumed lightly. We can hope to be successful only if (1) we have a deep conviction that what we seek is fundamentally important to the American interest, and (2) if we will take pains to understand why other nations fear that such a program may jeopardize their interests, and then make whatever accommodations may be necessary to resolve their doubts.

An expansive foreign trade policy has been advocated so vigorously and repeatedly in America recently that The Economist (of London) comments wryly upon what it terms the ironic circumstance that "the acceptance of the principles of free trade by the more literate (American) public should come at a time when the doctrines in their simplest nineteenth-century form have been pretty generally emasculated in fact and repudiated in principle by the rest of the world".

☆ ☆ ☆

Why are we opposed to managed world trade, and for competitive world trade?

First, we are against rigged and managed international markets because we know that successful participation necessitates a comparable degree of control over the domestic economy as well. There is little debate of this fact, and those nations which accept a managed external trade as a necessary protective measure are generally willing to pay the price in internal regimentation. We are not. For us to do that would be as alien to our genius as it is repugnant to our conviction.

Second, we believe that the United States will be able to compete successfully in world markets, even though we have, and intend to maintain, wage scales far higher than those of the nations whose competition we must meet.

There is impressive evidence to substantiate the soundness of this conviction:

1. Wage scales, of themselves, do not determine the competitive position. They are meaningful only when translated into labor costs, by dividing wage rates by units produced. **A recent War Production Board study shows that in manufacturing industries generally, during the period immediately before the present war, production per man hour in the United States exceeded that in the United Kingdom, Germany and Soviet Russia by a ratio of more than 2½ to 1, and that of Japan by more than 4 to 1.** When comparison is made with available wage data, it appears that our labor costs are generally on a competitive plane.

2. Perhaps the best evidence of our ability to compete in export markets is the record of our demonstrated capacity to do so in the past. **During the entire period between World Wars I and II, the United States consistently commanded a greater share of the world's export trade than any other nation,** although the United Kingdom took a larger percentage of world imports.

3. We have been particularly successful in world trade competition in the export of machinery, vehicles, a variety of manufactured specialties, and certain agricultural products. Except in the last-named field, there is every evidence that we enjoy genuine competitive advantage over other nations, and this advantage will have been increased rather than diminished by developments during the Second World War. It is noteworthy that the goods in which we have been able to compete most successfully have generally been the products of our high wage industries rather than those in which low wages have prevailed.

☆ ☆ ☆

It is clear that, on a price basis, we shall be able to compete successfully in postwar markets in numerous lines. It is equally clear that such an opportunity is by no means of negligible importance to our own economy as a whole. During the years in which the censuses were taken between 1909 and 1939, our exports amounted

to from 7 to 16 per cent of our entire production of movable goods. **In the year 1938 our exports in each of the following lines accounted for more than 10 per cent of total domestic production of the particular product.**

(The figures in parenthesis are the percentages of total production exported.)

CRUDE MATERIALS: Phosphate rock (51.5), cotton (30.5), tobacco (29.4).

FOODSTUFFS AND BEVERAGES: Linseed (49.4), dried fruits (36.2), canned sardines (29.4), rice (21.0), fresh pears (15.9), canned salmon (13.8), canned asparagus (13.2), canned fruits (13.0), wheat (12.2), lard (11.7).

SEMI-MANUFACTURES AND FINISHED MANUFACTURES: Refined copper (53.1), paraffin wax (46.3), gum turpentine (42.6), carbon black (40.8), gum rosin (38.0), borax (35.9), crude sulphur (35.6), aircraft and parts (26.8), office appliances (22.3), carbons and electrodes (21.8), printing and bookbinding machinery (18.2), agricultural implements and machinery (17.0), biologic pharmaceuticals (15.3), industrial machinery (14.4), dental instruments and supplies (14.3), automobiles (14.1), benzol (13.3), goat and kid upper leather (12.8), refined lead (12.0), radio apparatus (11.8), caustic soda (11.4), refined mineral oils (10.6).

It is of major concern to all engaged in these lines of activity and in many others that foreign markets be not closed to us. It is particularly to our interest to have export outlets for our war-expanded capital goods and equipment industries. Since we undertook an important percentage of such expansion in order to furnish munitions to our Allies, it is reasonable to ask their cooperation in cushioning what inevitably must be a drastic readjustment here. The case is strengthened by the fact that the postwar world will desperately need the equipment items that we, alone, can supply.

But our demonstrated ability to compete on a price basis will not, of itself, assure us of foreign market outlets. Transportation costs, quality of product, marketing skill, technical and repair service—all are basically important. Still more important are non-discriminatory open markets and the command of dollar exchange by prospective purchasers. Our export potentials will surely be cramped in a world organized on the basis of bilateral deals and exchange controls. The availability of dollar exchange must depend upon the level of American imports and the volume of American capital loans.

☆ ☆ ☆

How are we to explain the skepticism of other nations toward an order which to us seems so clearly to represent not only our interest but the long-range interest of the world as well?

Soviet Russia, of course, is committed to conducting its external trade through its central government. But what of the United Kingdom? Why are there so many British voices that counsel the abandonment of what has been Britain's traditional position for more than a century? If we can understand that, we shall understand the dissent from our position of most nations whose economic positions have weakened and whose fiscal problems have multiplied during the two World Wars and the ill-starred period between them.

Essentially, their case is this:

Partly, they were forced into managed external trade policies by the Axis self-sufficiency programs, adopted in preparation for aggressive war. That can be corrected only by crushing the Axis, and by establishing a world security system that will make self-sufficiency a less compelling need.

But primarily, the reluctance of peaceably inclined nations to forego restrictive controls over postwar foreign trade stems from a deep-seated fear that is even more difficult to resolve. They fear, on the basis of past experience, that their efforts to meet payment balances arising from normal foreign trade would force a deflation of their internal economies, affecting prices, credit, wages, and finally employment. Faced with the choice, as they see it, between making adjustments in foreign trade or in their domestic economies, they lean toward the former as, at worst, the lesser of two evils.

☆ ☆ ☆

Since the kind of world trade system we seek is dependent upon international arrangements to assure reasonable stability of exchange rates between national currencies, we are challenged to find a formula that both will provide this and at the same time allay what other nations believe are legitimate fears with respect to their domestic economies.

But at least two major steps toward resolving such doubts can be taken upon our own initiative without recourse to the intricate process of international negotiation.

One is the rational overhauling of our tariff system, to provide other nations with increased opportunity to export to us. We can, and should, do this in a way that avoids undue cost to any segment of our economy.

The other, and probably the greatest contribution we can make toward winning a reluctant world to our point of view, will be to offer ample and convincing evidence that we are ready and able to provide a high level of employment in the United States. If we can do that, the rest of the world will wish to expose itself to our influence rather than to insulate against it, since prosperity here is the greatest single contributing factor to world-wide prosperity.

Balance of payment problems are minimized in a world of thriving trade. Britain would have little reason to resort to exchange controls if the total of postwar world imports and exports reaches an 80 billion dollar level. She may well be in a desperate plight if it should revert to the 1935 level of 40 billions.

☆ ☆ ☆

The United States wants a world in which private enterprise and competition play a major role. To obtain such a world will require a wiser, more understanding and firmer world leadership than this nation, or perhaps any nation, ever has exerted heretofore.

President, McGraw-Hill Publishing Co., Inc.

How Many Sciences

are focused on the work of Improving C&K Looms?

In research, three fundamentals are so obvious that they're often overlooked. First, define the problem. Next, ascertain what unknown factors need to be known. Then find the tools to work with. Foremost among these is *intelligently evaluated experience* which gives an accurate bearing, based on known quantities, to guide explorations into unknown fields.

It takes this experience to select and correctly employ the right tools for use in any particular *new direction* of research, from among all the modern methods, materials and equipment available. And C&K has enlisted the benefit of the most advanced thought in many fields of science: Electronics, mechanics, hydraulics, metallurgy, chemistry, physics, pneumatics, radiography, aerodynamics, optics . . . and many others, including high-speed photography in which C&K has made special developments which will be shown in these pages in the future.

Many of these tools have been chosen on the basis of speed, for many parts and motions on C&K Looms operate within time-limits equalled by few other modern mechanisms. In fact, long experience with projectile-like speeds is one of the chief reasons why C&K has *five times* received the Army-Navy "E". And this sound experience, implemented with the newest developments in many varied scientific fields, is the reason why you, Mr. Mill Owner, can depend upon it that C&K Looms of the future will be improved as they have been in the past . . . not as complete, overnight packaged miracles . . . but as continuously developing mechanisms to which new ideas will be added as they are *proved.*

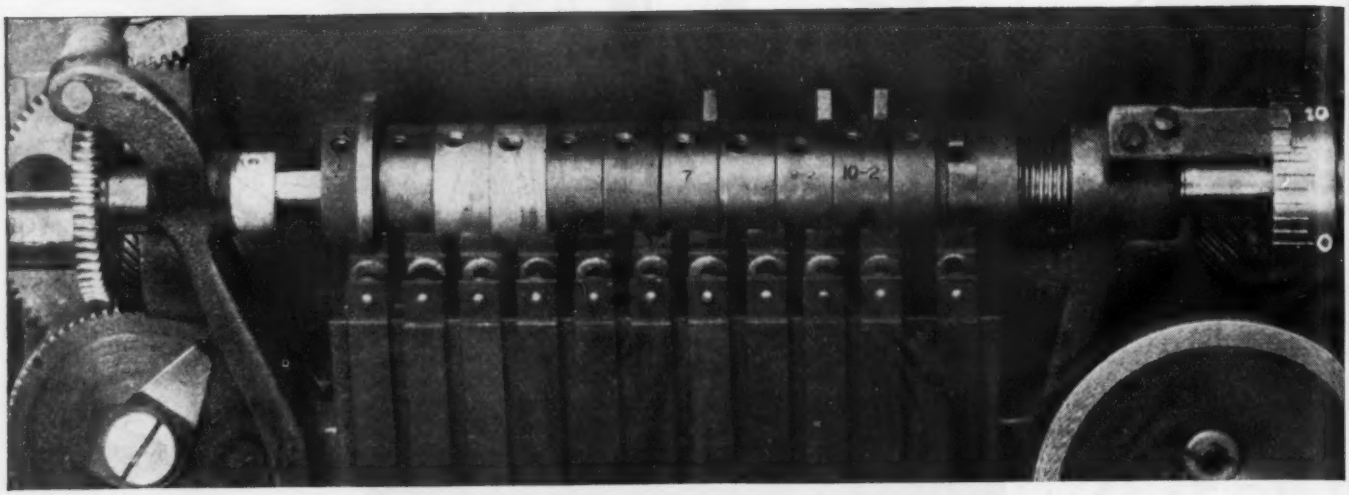
Crompton & Knowles Loom Works

WORCESTER 1, MASSACHUSETTS, U. S. A.
PHILADELPHIA, PA. • CHARLOTTE, N. C. • ALLENTOWN, PA.

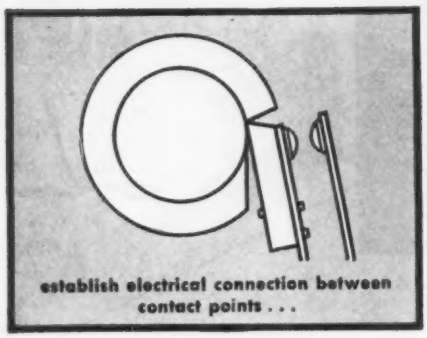
between Today's War Weapons . . .
and their New Uses in Tomorrow's Looms

AS SIMPLE AS A TRAFFIC LIGHT

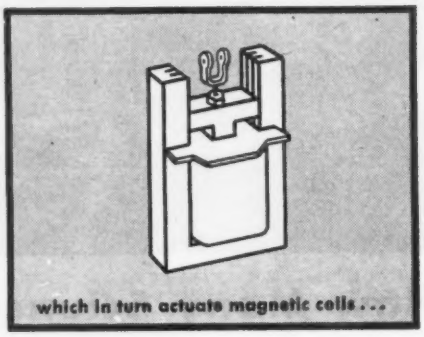
This Is the Simple, Positive Method of Transmitting Motion on the Universal No. 99 Automatic



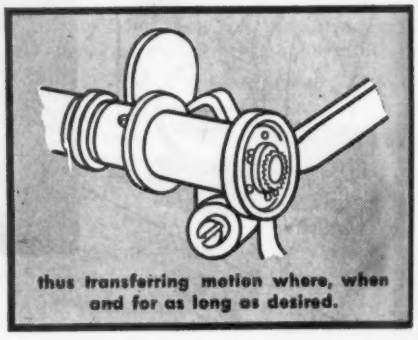
This timer drum slowly rotates the various cams which, in their proper order . . .



establish electrical connection between contact points . . .



which in turn actuate magnetic coils . . .



thus transferring motion where, when and for as long as desired.

What makes the Universal No. 99 *automatic* is a device so simple, so fool-proof, that it is used in hundreds of commonplace applications — household appliances, oil burners, traffic lights, display signs—as well as throughout industry.

Using a simple solenoid (magnetic coil) simplifies design and eliminates fast-wearing mechanical parts.

LOOK FOR ALL THREE
IN CONSIDERING AN AUTOMATIC MACHINE

This use of electrical as well as mechanical controls is one of three features considered essential by many mill men who are familiar with automatic winding. The other two are:

Positive spindle drive, through gears, from a rotating shaft. With slip eliminated, there is no loss in speed between shaft and spindle.

A yarn traversing method—the unique Universal Traverse Wheel — producing round, parallel-sided, ridge-less bobbins.

Thus, with the Universal Automatic, you get—from these three features—lowest maintenance, maximum production, quality winding.

Other Important Universal Features. "Layer-lock" wind, reducing tendency to "shell off" in the shuttle. Centralizing bobbin driver. Automatic release of tension at start of winding. Magazine creeling. 9½" maximum traverse, 1½" maximum diameter.

The UNIVERSAL AUTOMATIC has proved successful over a period of years winding rayon yarns for the loom. Orders for after-the-war delivery are now being accepted for winding all fibres.

23.4.17

UNIVERSAL AUTOMATIC
High Speed Bobbin Winding Machine

UNIVERSAL WINDING COMPANY

. . . Putting Electricity to Work to Improve Your Bobbin Winding

LEESONA

PROVIDENCE · BOSTON · PHILADELPHIA · UTICA · CHARLOTTE · ATLANTA

STANDARDS MANUAL
Minimizes Training Time

HIGHLIGHTS: Four-week course prepares supervisors and instructors to operate new tire-cord plants of American Viscose Corp. Textbook standardizes practices after ascertaining one best way. Groups from Lewistown and Parkersburg trained at Roanoke plant.

By C. W. BENDIGO

Executive Editor, TEXTILE WORLD

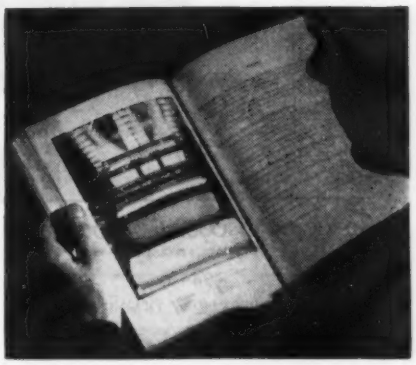
FOUR YEARS ARE NEEDED to train a textile supervisor, it was decided at a recent conference. This conclusion was based on the customary procedure of having supervisors work up from the ranks after learning a large variety of textile jobs by actually working at them.

But the immediate need for new types of war material requires that the training of new supervisors be kept to the barest minimum of time. The armed services have found how to cut training time to a bare minimum and so has the textile industry—at least a portion of it—for good success has been achieved in training supervisors in four weeks instead of four years. The main difference is that the supervisors referred to were taught through the use of a plan and a manual instead of being merely exposed to the operations they were to learn.

A. V. PROGRAM. When the need for rayon tire-cord fabric became urgent, the American Viscose Corp. undertook not only to produce high tenacity rayon but also to operate for the first time twisting and weaving plants. Tire-fabric production was first begun in the corporation's Roanoke plant, where practices were standardized and written up into a manual for use in training supervisors to operate two additional plants in Lewiston, Pa., and Parkersburg, W. Va. The Roanoke unit got under way early in 1944, and by September the Lewistown mill started up; it was followed approximately a month later by the Parkersburg unit. For this outstanding achievement, the tire-fabric production manual illustrated on the cover of this issue of TEXTILE WORLD played a major part. As LeRoy H. Smith, Roanoke plant manager, mildly puts it, "This textbook . . . considerably accelerated the training of the supervisors."

Due to the very little time available for the expanded program which was authorized by the War Production Board, George M. Allen, manufacturing manager of the corporation, requested Mr. Smith and George G. Wells, Jr., who is now corporation coordinator of the tire-fabric department, to plan a school at Roanoke to which prospective foremen and foreladies could be sent from the Parkersburg and Lewistown plants to learn the production of tire fabrics. Mr. Smith was responsible for the writing of the manual or textbook covering all phases of the production of tire-cord fabrics. He was assisted by Mr. Wells, Lawrence H. Pownall, and Robert B. Leftwich. The manual reflects much of the principles of the work-simplification program now in effect in the corporation.

MANUAL IS COMPREHENSIVE. The manual logically begins with an introduction in which the trainees were told the reasons for the program, the way the program would be conducted,

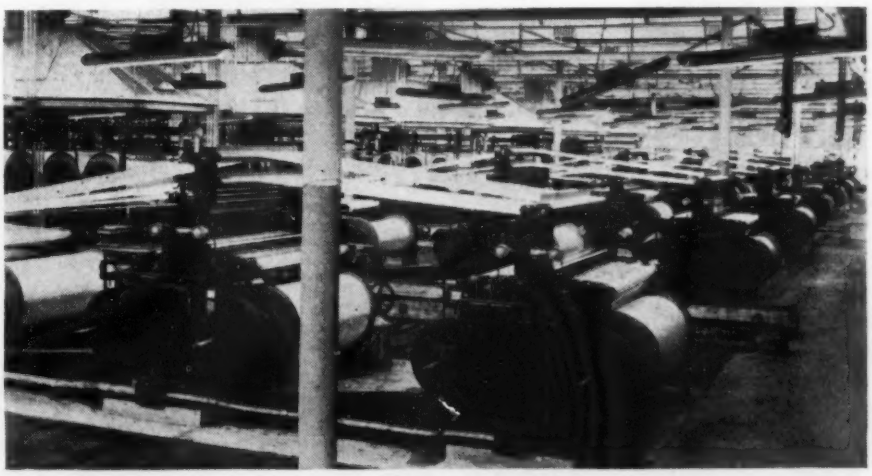


These manual pages show how text accompanies illustrations to describe them.

and a large mass of general information which they would need to know particularly since they were brought to Roanoke from other plants.

Although only a little over three pages are devoted to a glossary, this section of the manual is of great importance in standardizing terminology. For example, it differentiates between a bobbin and a spool as used in the department, so that there is no confusion when these two somewhat similar objects are referred to in the manual or elsewhere.

The manual permitted all trainees to be taught all of the operations in twisting and weaving tire cord. Thus, when they were assigned to a specific



Delivery ends of seven 11-cylinder slashers in the Lewistown Plant fill five beams simultaneously. During slashing, yarn is stretched and a finish is applied to make the finished fabric more receptive to the rubber treatments by the tire manufacturer. This process precedes single-end twisting and is a function of the yarn-producing plant.

AMERICAN VISCOSE CORPORATION
ROANOKE, VIRGINIA
1944
TIRE FABRIC SUPERVISORS' TRAINING SCHOOL
TO ALL WHO SHALL SEE THESE PRESENTS, SALUTATIONS
This is to Certify that
Mary Jane
HAS SUCCESSFULLY COMPLETED COURSES IN THE FOLLOWING

LeRoy H. Smith is here presenting a diploma to Beryle Patterson, leader of the Lewistown group which was the first to "graduate" from the training school. Smith became plant manager at Roanoke in 1938.

job later, they would know not only their own operations but also operations which precede or follow. In addition, it gave them a reference to which they could turn whenever memory failed them. As a third benefit, the manual left no question as to the one best way to do a particular job.

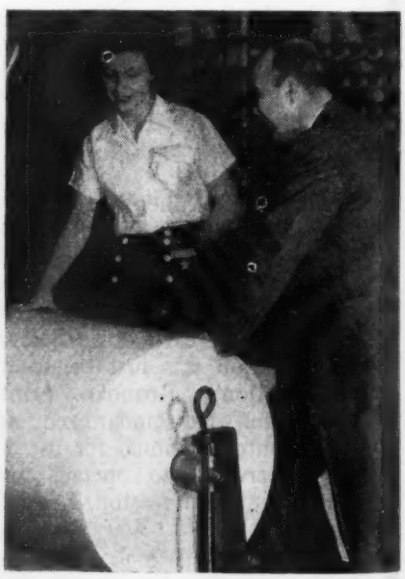
The text in the manual covers 91 pages, not including the more than 50 illustrations. Many of the illustrations, such as appears on the cover of this issue, are marked so as to show the name of the particular part or to show operations involved. The very first part of the manual devoted to training explains the overall operations of the tire-fabric department. For example, the manual shows that the yarn arrives at the tire-fabric department either by rail or truck and comes wound on beams each of which is made up of 160 ends of 1,100-den. multi-filament high-tenacity yarn, each end about 22,000 yd. in legnth. The trainees are told that the single end is twisted to about 14 turns per inch Z, after which the single twister bobbins are respooled before being cable twisted 12 turns per inch S. They are told that the rayon warp is woven with 30s cotton filling with only a very few picks per inch, and that the fabric is wound up on a roll until 750 yd. accumulates. The splicing of cable yarn is explained, as well as the handling of fabric rolls and the quilling operation which is done on automatic winding machines.

After this general description, the manual explains in detail the handling of beams, single twisting, respooling, cable twisting, weaving, handling of fabric rolls, repair of defective fabric, splicing, quilling, and baling of fabrics.

DETAILED DESCRIPTION. All of the operations listed have a detailed breakdown of the elements comprising them. At the end of the manual are brief descriptions of jobs not covered by the detailed breakdown, such as the duties of instructors, oilers, loom-fixers, and clerks. The manual does, however, include a detailed lubrication chart which lists the machine, the parts, the lubricant, the person responsible for oiling, and the frequency of oiling.

The manual leaves virtually nothing to chance in the description of the principal jobs in the twisting and weaving of tire fabrics. The proper sequence is also given. For example, the following elements are given for beam handling: 1. Position empty truck and chain hoist at empty beams. 2. With hoist, raise empty beam from machine and lower to truck. 3. Pull truck with empty beam to big aisle. 4. Push truck

Partial view of single twisting department at Roanoke. Machine is being doffed.



George G. (Bully) Wells, coordinator of tire fabric production, has been very active in the training program.

with full beam from big aisle down wide machine aisle to center of machine. 5. With hoist, raise full beam from truck and lower to beam stand. 6. Cut fastener and remove wrapper from beam. 7. Take empty truck and wrapper to big aisle. 8. Place wrapper on empty beam and tie. 9. Record data on form. 10. Pull truck with empty beam to storage area. 11. Unload empty beam to rack, using hoist when necessary. 12. Load full beam on truck from rack, using hoist when necessary. 13. Pull truck with full beam to big aisle at single twisters and park.

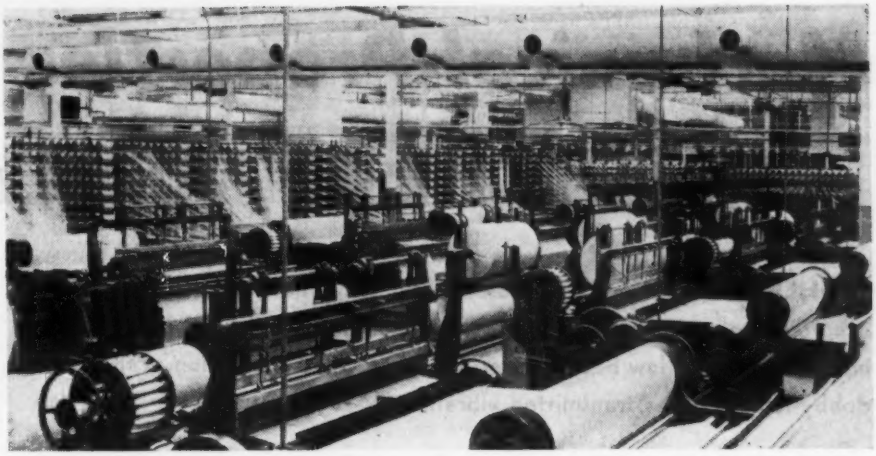
COMPLETE INSTRUCTION. Such a listing does not, by any means, complete the instruction for each unit. For example, element 1, which is "position empty truck and chain hoist at empty beams," is described more fully as follows:

"Empty truck obtained from big aisle should be pushed down the wide machine aisle to the spot where empty beam on the machine is located. Care should be taken to see that truck is placed so that beam can be lowered directly to it by the chain hoist. Chain hoist should be pulled by rope from the big aisle to a position directly over the empty beam on the machine. Care should be taken to see that chain's crosstree, or fittings are held high enough to keep from dragging on beams already in place. Rope is hooked on door knob at the end of the machine, then unhooked from the chain and chain taken to a position directly under the hoist."

The foregoing is something of an indication as to how all important jobs and all elements of those jobs are explained. Many charts are used which show, more clearly than a photograph, the operations involved. One of these showing the method of threading a cable twister is illustrated.

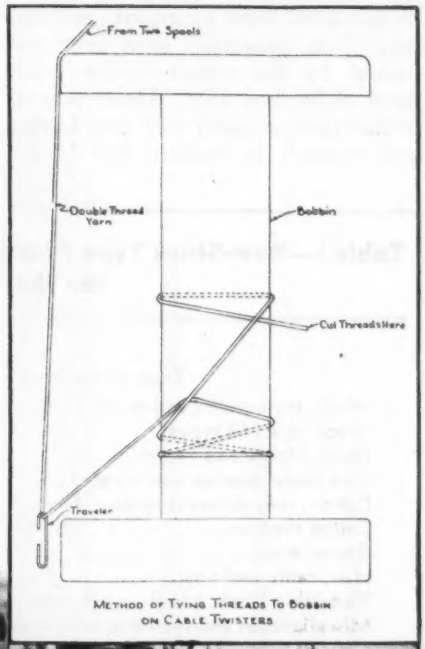
TWO GROUPS TRAINED. The first group of American Viscose employees at Roanoke trained to be supervisors consisted of twelve women and eight men sent there from the Lewistown plant. Seventeen days after this group returned to its plant, a second group of approximately the same number arrived in Roanoke from the Parkersburg plant of American Viscose Corp.

The Lewistown twisting and weaving unit consists of 102 Whitin single-end twisters of 160 spindles each, 6 Saco-Lowell respoolers, 87 Saco-Lowell cable twisters of 132 spindles each, and 48 Draper XP looms. The Lewistown plant has converted a portion of its rayon producing facilities so that it can manufacture annually approximately 20,000,000 lb. of high-strength rayon for use as tire-cord fabric. This yarn is now being twisted and woven into tire fabric by the new equipment just listed.

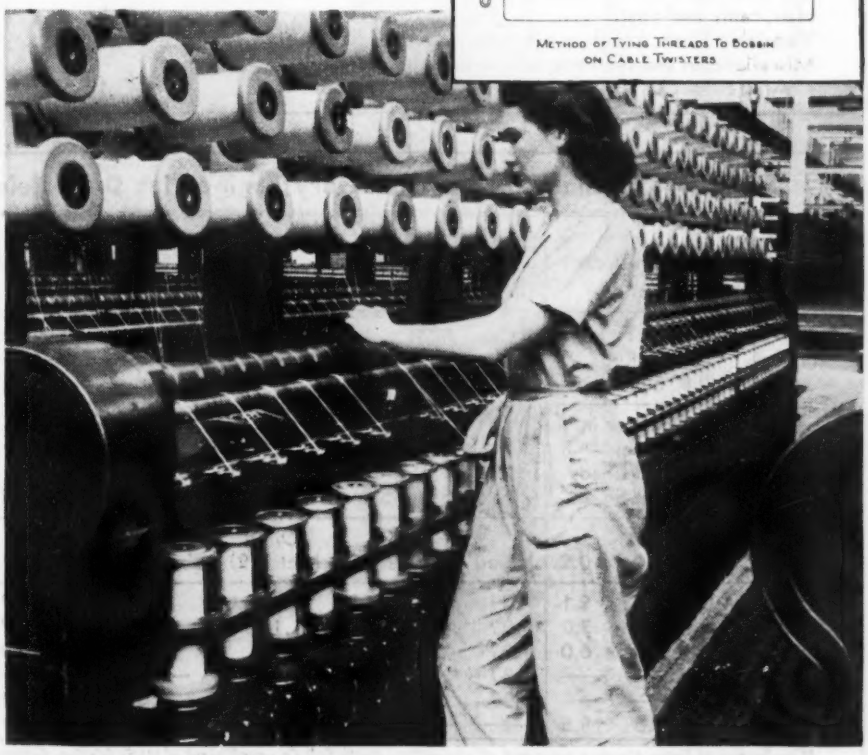


Part of tire-fabric looms at Lewistown. Cable and single twisters are in the background.

The Parkersburg twisting and weaving plant consists of 124 H & B single-end twisters, 6 Saco-Lowell respoolers, 90 Saco-Lowell cable twisters, and 49 Draper XP looms. This plant receives its high-strength yarn from the Front Royal and Marcus Hook units of American Viscose Corp. The Front Royal plant has been authorized by the government to produce annually approximately 82,000,000 lb. of high-strength rayon yarn (over one-third of the total authorized).



METHOD OF TYING THREADS TO BOBBIN ON CABLE TWISTERS



Operator is about to use a knee brake on a cable twister. Inset from manual shows method of tying cable yarn to bobbin.

Mechanical Properties of WOOL FELT Are Controllable

HIGHLIGHTS: Blends of vegetable and synthetic fibers with wool varied according to end-use performance specification. Kapok-wool blends used in insulation felts for low heat-transfer and high sound-absorption. Felt beneath dobby loom reduces transmitted vibration by 70%.

By W. H. LEHMBERG*
The Felt Association, Inc.

UNDER THE PRESSURE OF WAR PRODUCTION, the mechanical uses of felt have been expanded, and certain of its properties have been improved by the supplementary treatment of finished felts. Developments of this type, coupled with engineering and research in modern felt laboratories, are opening broaded fields of usefulness for mechanical felt products and invite attention to the origin, construction, and physical properties of this basic material.

MATERIALS USED. Felt manufacture embraces the expert knowledge and use of more different kinds of fiber than any other single branch of the textile industry. In this respect, Table I is of interest as a raw-stock type classification of the wool-felt industry for the year 1942. Where low cost is a requirement, re-used wools may be introduced in the raw-stock blend.

To attain specific properties in certain felts, nonfelting vegetable and synthetic fibers are added in the blend with wool as the matrix. So great is the felting power of wool that percentages as low as 20% may be used on occasion.

Cotton combines to attain decreased felt density or to obviate voids in wool-base filter felts; rayon, silk, and Aralac to modify felt construction or surface texture. Kapok-wool combinations make possible the low thermal-conductance and high sound-absorption coefficient ratings of insulation felts.

From the standpoint of fiber fine-

Table I—Raw-Stock Type Classification of the Wool-Felt Industry for the Year 1942

Type of raw stock	Percent of total fiber processed
Wool, reprocessed and re-used	33
Wool, new (48 types)	18
Noils, Noble and French	10
Card waste, woolen and worsted	5
Cotton, raw; domestic, India, China	11
Cotton merinos	10
Rayon waste	6
Hair, cattle and goat	5
Vegetable fibers, kapok, ramie, jute	1
Miscellaneous and synthetic, silk, viscose and acetate rayon, Vinyon, Aralac	1

** This paper was presented before the Textile Division, American Society of Mechanical Engineers, at the annual meeting in New York.*

Table II—Summary of Supplementary Engineering Data Related to S.A.E. Felt Qualities

S.A.E. Quality Number	Abrasion Wear			Coefficient of Static Friction				Oil Absorption and Capillary Flow								Thermal Conductivity (3)
(1)	Felt to Felt 10,000 Rubs, 8° Stroke							S.A.E. No. 20 Oil at 70° F.								K-Factor
	% Decrease in Thickness At Stated Loads in Oz. per Sq. In.			Felt Against Smooth Surface				24 Hr. Absorption	Wicking Rate In./Min. Lapsed Time							1-in. Felt
	3.9	7.0	10.2	Wood	Glass	Metal	Oiled Metal (2)	% Wgt. Increase	5	10	15	30	60	90	120	B.t.u. Hr./ Sq.Ft./°F.
F-1	1.0	2.3	2.1	.37	.26	.22	.18	187	0.5	0.7	0.8	1.1	1.6	2.0	2.2	0.36
F-3	2.1	2.1	3.0	.37	.26	.22	.18	263	0.5	0.7	1.0	1.3	1.7	1.8	2.1	0.35
F-5	3.0	3.0	6.0	.37	.26	.22	.18	318	0.6	0.9	1.0	1.3	1.7	1.9	2.0	0.30
F-10	—	—	—	.37	.26	.22	.18	—	—	—	—	—	—	—	—	—
F-11	—	—	—	.37	.26	.22	.18	364	0.6	0.8	1.1	1.7	2.0	2.2	2.4	0.23
F-15	4.1	7.6	18.5	—	—	—	—	571	0.6	0.9	1.1	1.4	1.6	1.8	1.9	0.24

(1)—Sources of Data; Abrasion wear and oil absorption, Booth Felt Co.; coefficient of static friction, Felters Co.; thermal conductivity, American Felt Co.'
(2)—S.A.E. No. 80 aviation engine oil.
(3)—Thermal and acoustical felts blended with kapok fiber have tested values of 0.21 K factor and 0.80 sound-absorption coefficient at 512 cps. for 1-in. thickness of 3.2 lb. per sq. yd. weight.

ness and length, felt is fabricated principally from fibers having a staple length of 1½ in. Noils in the range of ¾- to 1-in., however, are not uncommon. Fibers of excessive length tend to mat without felting, while extremely short fibers lack the depth of penetration necessary to impart the tensile strength and splitting resistance required in many felt applications. A range of fiber diameters is employed for various felt types, and qualities are used running from fine 80s wool down to coarse carpet grades and to cattle or goat hair used in plate-glass-polishing felts. Although fiber grade and composition by no means determine the entire character of the finished felt, the selection and blending of appropriate grades and types are the first and the most important steps in the manufacture of any mechanical felt to a specific end-use performance.

MANUFACTURE. With the exception of hardening, and occasionally finishing, the initial and terminal operations in producing wool felt follow the general pattern of wool-textile manufacture.

Taking the steps in sequence, the wool is first degreased and, in most instances, depitched and carbonized. Proportions of these wools, or wools and other fibers, are then blended according to batch quality formulation. Uniform blending is the most critical initial operation in felt manufacture. The stock is alternately run through the picker and an air-dispersing blending bin until it is thoroughly opened and uniformly blended. After picking, the blended raw stock is put through a breaker card and a standard-type woolen finishing card. From the finishing card, the stock is drawn off in a web supported by slatted aprons and delivered to an endless 42-yd. apron.

Although straight-web felt constructions are frequently used, alternate webs from multiple-card sets are usually crossed to provide transverse as well as longitudinal strength. The forming apron delivers batts ranging from ¼-in to 1-in. in thickness, 36 to 80 in. in width, and 40 yd. in length. For most mechanical felt qualities, these batts are then layed up in thicknesses of from 6 in. for roll felts to 3 ft. for sheet felts, depending on the required finished thickness and density.

Felt hardeners consist of a solid or perforated steam-fed bed-plate, equipped with an oscillating or vibrating top platen of intermittent and adjustable stoke. Steam pressures of 5 to 10 psi. and platen pressures of approximately 70 psf. are used. In roll-felt production, top, bottom, and intermediate canvas carrier-aprons convey two first-run and two second-run batts through the hardener after preliminary moistening and steaming.

First-run batts receive primary hardening and act as a cushion in the final hardening of second-run batts. The interfacial agitation of the batt set up by the vibrating platen, in combination with controlled conditions of moisture, heat, and pressure, causes the fibers to soften, entangle, and reorient themselves in closer locked engagement. Hardening is continued until a lightly felted fabric of sufficient strength to be handled in the succeeding steps of manufacture is formed. As a result of hardening, roll-felt batts, Fig. 1, are reduced in thickness from a maximum of 6 in. to 1-in., and sheet-felt batts from 3 ft. to 4 in.

Although the initial felting operation of hardening is exclusive to felt, the final operation, fulling, is common to the entire woolen industry.

Felt fulling mills are of several types and include rotary as well as the conventional one-, two-, and four-hammer mills. Prior to fulling, the hardened material is treated with a fulling agent

(*Continued on page 194*)

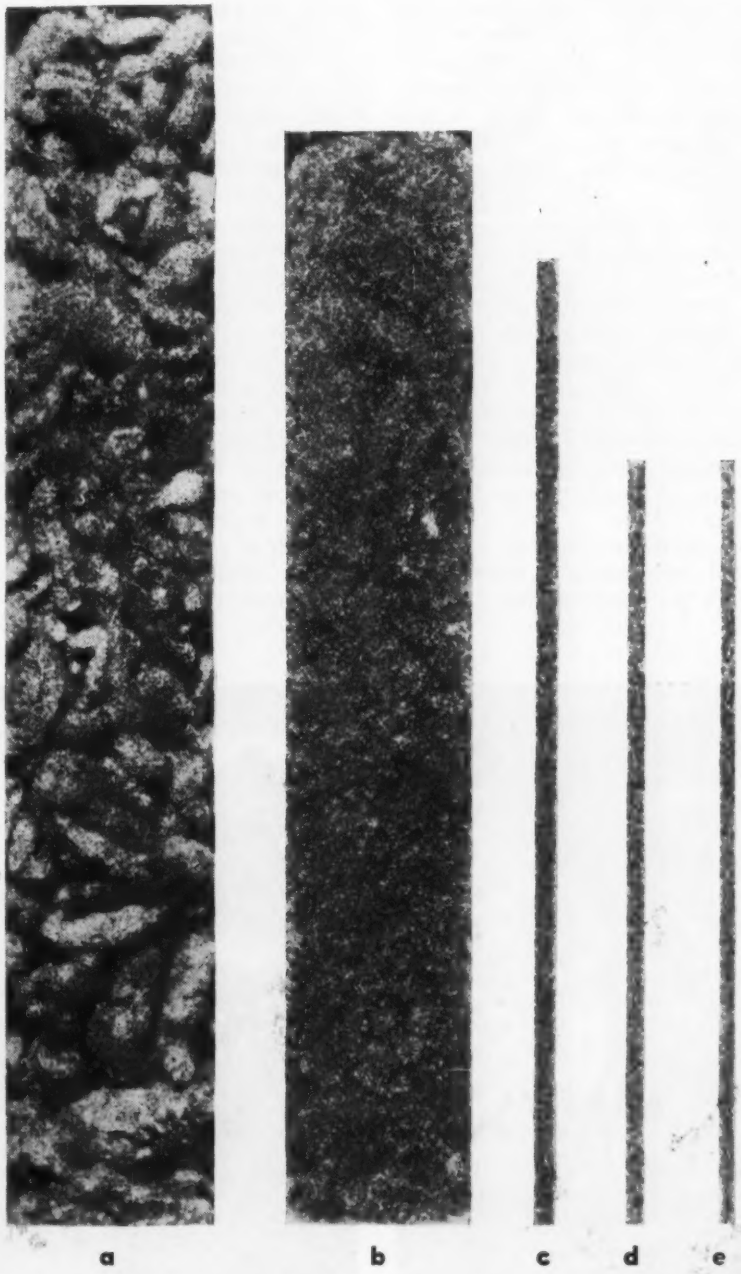


Fig. 1. Sectional view shows thickness reduction and dimensional shrinkage attained in successive stages of wool-felt manufacture. Section a shows initial raw stock, b carded raw-stock batt, c hardened material, d fulled material, and e finished felt.

NYLON TIRE FABRIC
Produced at Fisk Plant

HIGHLIGHTS: Warping is from 2½-lb. cones in 1,216-end creel. Ply twisting of 4 ends precedes cabling. Total denier less than in rayon constructions, but strength is equal, thus saving in weight of equivalent tire.

PRODUCTION OF NYLON tire-cord fabric at the New Bedford (Fisk) plant of the United States Rubber Co. follows a procedure very close to that used for rayon-cord fabric. Nylon tire cord is becoming of increasing importance with 10,000,000 lb. to be produced this year. Increased facilities are being made available for this production.

At the Fisk plant, one of the most critical operations is the warping of the 210/34 nylon yarn from 2½-lb. pineapple cones. For this purpose, the huge magazine creel shown in Fig. 1 is used. It accommodates 1,216 cones (608 ends). Humidity is quite important during this operation and is maintained between 70 and 75% for best running results. Over 20,000 yd. are wound on a section beam for a net weight of 772 lb.

From the warpers, section beams are mounted on beam (ply) twisters, and four ends are plied together (Fig. 2). Normal procedure is for these spools to be backwound to larger ones before being creeled in on a cable twister where two ends are cabled together.

Spools from the cable twisters are placed directly in a creel back of automatic looms, and weaving follows similar to that employed for "1,100-den." rayon cord (over 2,200-den. actual).

United States Rubber Co. first experimented with nylon tire cord in 1940. It found that the strength of the nylon cord exceeds cotton by 225% and rayon by 137%. It can be seen, however, that the eight strands of 210-den. nylon result in a lighter cord than the two strands of 1,100-den. viscose rayon. Strength of the individual cords (27-lb.) is approximately equal to that of the heavier high-tenacity rayon but permits the production of a lighter airplane tire with maximum strength or a stronger tire of the same weight. Nylon cord tires are used on B-29 superfortresses as well as for other aircraft when tires must withstand extreme loads.

NEW CONSTRUCTIONS. The comparison drawn here between nylon and rayon cord does not take into account the newer "2,200-den." rayon constructions which are currently being used in truck tires, since tests are still being conducted as to the acceptance of the newer "2,200-den." fabrics.

Actually, the "2,200-den." fabric utilizes an ultimate cord of over 4,400-den., which results in fewer ends per inch in the fabric, and eight plies instead of ten on some constructions.

In addition to nylon fabric, the Fisk plant is also in mass production of the "2,200-den." rayon tire-cord fabric for use in truck tires since, according to J. C. Ray, general sales manager of the Fisk division of the United States Rubber Co., "the new method of construction not only provides a better, stronger tire, but has also enabled us to increase truck-tire production by as much as 10%." Mr. Ray also states that the use of rayon in tire cord has increased performance of synthetic-rubber truck tires as much as 375% compared to cotton cord.

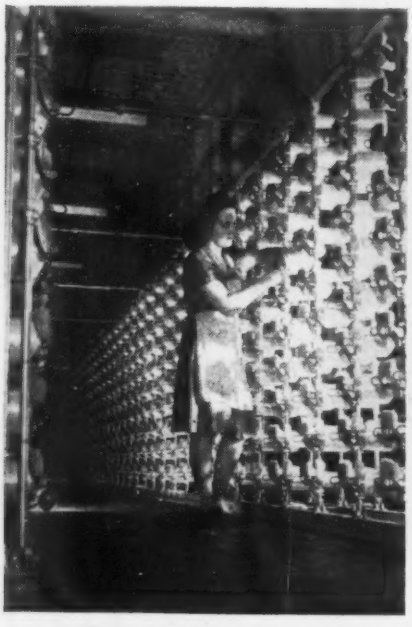


Fig. 1. Pineapple cones of 210-den. nylon are magazine-creeled. This creel accommodates 1,216 cones.

Fig. 2. Adone Deubard of the New Bedford plant of U. S. Rubber inspects beam (ply) twisting. Redraw and cable twist follow.

Fig. 3. Ends per inch of woven nylon fabric is here being checked by Lucille Souza at the Fisk plant.

PLASTICS SURVEY
Shows Many Textile Uses

HIGHLIGHTS: Many new materials in various modifications are available. Emulsion forms make for greater ease of application and more wide-spread use. Plastics for textiles still in infancy.

By C. NORRIS RABOLD
Consulting Editor, TEXTILE WORLD

Velon products courtesy Firestone Industrial Products Corp.

IN THE PLASTIC TABLES, which follow on pages 94 to 97, an endeavor has been made to summarize the most important types of plastics materials from the standpoint of their chemical nature, solubility, film resistance to chemical attack, methods of application, and possible textile uses.

TABLE NEEDED. There has been need of a compilation of this type for a long time in order to clarify and bring together under one heading the majority of the plastics best suited for textile applications. Often too little is known by the processor of textile fabrics as to the nature of the various materials he is applying, and we believe this to be particularly true of the various synthetic resins. When one recalls that plastics, with a few exceptions, are not much over two decades old, with the bulk of development taking place in the last ten years, it can be readily understood why the synthetics picture is confusing, at times, not only to the industry to which these products are offered, but also to the plastics manufacturer himself.

It is likely that had one spoken to a textile mill-man and to a plastics manufacturer 10 or 12 years ago and mentioned synthetic resins to them, the picture of an extruded or molded plastic article would flash before their eyes. At that time, and indeed until the last 5 or 6 years, little attention was given to the coating or impregnation of fabrics, except by the manufacturers of the then relatively few types of synthetic resins used for producing artificial leather and the several groups for fabric impregnation and lamination. Perhaps this was due to the fact that other markets for the resins were more profitable, and far larger quantities were consumed in the manufacture of molded and extruded articles. Possibly another reason was that neither the chemical manufacturer nor the textile man realized the possibilities of impregnating fibers and fabrics with synthetic resins. In fact, it is unlikely, even today, that the full possibilities of synthetic resins on textiles have been more than lightly touched upon. We doubt whether we are out of the creeping, let alone the walking, stage in this respect.

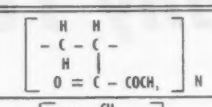
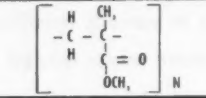
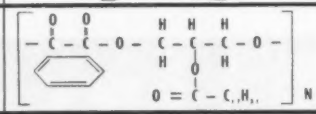
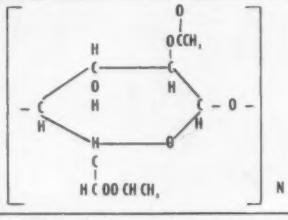
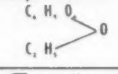
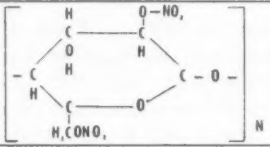
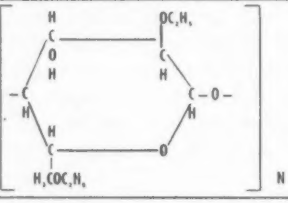
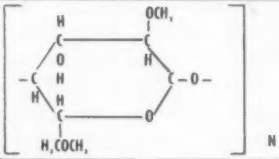
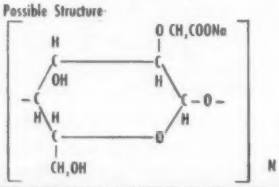
MANY NEW FORMS. It should be noted that of the plastics listed in the tables which follow by far the bulk is represented by specific reaction and formula, which in some instances stands for an individual product, while in others is intended to represent a group of resins of which each member has its own individual properties. For example, the tables contain nylon under the heading of polyamide resins; yet it is possible to make literally thousands of polyamide resins with different physical and chemical characteristics. Of course, thousands would not be made because of expense and similarity in properties; but undoubtedly, other polyamides besides this particular condensation product will be made available to the textile industry. The same is true of many of the other groups listed, so that it is possible to select specific resins for specific purposes.

Until a relatively few years ago, those resins available to the textile industry were, in many cases, made only in non-aqueous solutions. Since the bulk of the textile industry is a wet-processing one, using water as the universal solvent, this decreased considerably the widespread experimentation and use of many groups of resins having highly desirable properties. Recently, more and more of these resins have been made available in oil-in-water type dispersions, which we believe will greatly increase their application possibilities.

In the preparation of the tables, by far the greatest part of the information was obtained from manufacturers' literature, although a generous amount came from articles in various scientific publications and recent texts on organic chemistry. For greatest usefulness, these tables have been made as brief and concise as possible.

The tables follow:

PROPERTIES OF PLASTICS

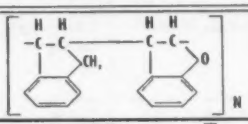
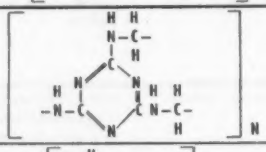
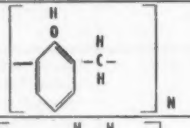
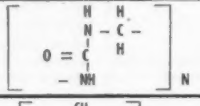
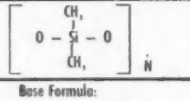
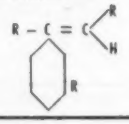
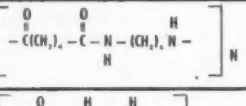
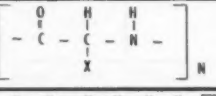
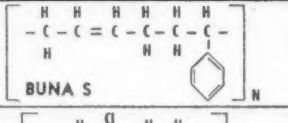
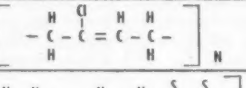
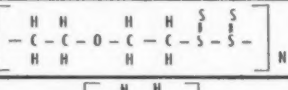
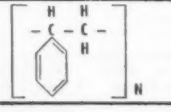
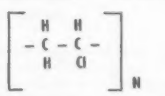
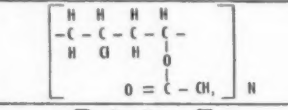
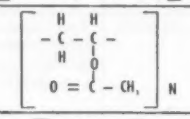
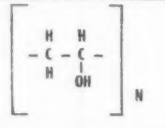
	Name of Plastic	Made From	Formula Of Polymer	Type	Soluble In
ACRYLICS	ACRYLATE	Chlorohydrin CH_2OH CH_2Cl and Sodium Cyanide NaCN		Thermoplastic	Ketones, esters, chlorinated hydrocarbons, hydrocarbons. Insoluble in most dry-cleaning solvents
	METHACRYLATE	Acetone CH_3COCH_3 and Sodium Cyanide NaCN		Thermoplastic	Ketones, esters, chlorinated hydrocarbons, petroleum hydrocarbons. Insoluble in most dry-cleaning solvents
ALKYDS	ALKYD	Type reaction Glycerin $C_3H_5(OH)_3$, Phthalic Anhydride Unsaturated fatty acid $C_{17}H_{33}COOH$		Thermoplastic Thermosetting	Hydrocarbons
CELLULOSE	ALKALI-SOLUBLE	Purified cellulose dissolved in catalytically activated caustic soda.		Set on neutralization of alkali	Strong alkalis
	ACETATE	Purified cellulose (Cotton Linters) $(C_6H_{10}O_5)_n$ and Acetic Anhydride $(CH_3CO)_2O$		Film formed on evaporation of solvent	Ketones, esters, and chlorinated hydrocarbons
	ETHERS	Inorganic acid esters reacted with cellulose in the presence of strong alkalis	General Formula X = Cellulose R = ALKYL or ARYL Group Example: 	Set on neutralization of alkali	Aqueous solutions of strong alkalis.
	NITRATE	Purified cellulose (Cotton linters) $(C_6H_{10}O_5)_n$ and Nitric Acid HNO_3		Film formed on evaporation of solvent. Increased toughness obtained if heated to 180° - 200°F	Ketones and esters. Other organic solvents.
	ETHYL	Purified cellulose $(C_6H_{10}O_5)_n$ and Ethyl Chloride C_2H_5Cl (In presence of caustic soda NaOH)		Film formed on evaporation of solvent. In emulsions, evaporation of water and solvents. Thermoplastic	Alcohols, esters, ketones, hydrocarbon solvents, and mixtures thereof.
	HYDROXYETHYL	Refined cellulose (from wood-pulp) and an ethylene derivative	General Formula $(C_6H_{10}O_5)_n(C_2H_4OH)_x$	Film formed on evaporation of water.	Water. Compatible with many oil and wax emulsions, starches, etc.
	METHYL	Purified cellulose $(C_6H_{10}O_5)_n$ and Methyl Chloride CH_3Cl (In presence of caustic soda NaOH)		Film formed on evaporation of water	Water. Will tolerate strong alkalis with increase in viscosity. Dilute, weak acids have little effect on solution.
	SODIUM-CARBOXY-METHYL	Chloracetic Acid $CH_2ClCOOH$ and Alkali cellulose	Empirical $(C_6H_7O_2OCH_2COONa)_n$ Possible Structure 	Film formed on evaporation of water.	Water and alcohol-water mixtures (not over 50% alcohol).

NOTE: Under Cellulose are listed several products which, technically, are not classed as resins or plastics. These have been included because they are related and of interest and are of use to the textile industry.

FOR TEXTILE APPLICATIONS

Nature Of Film	Solubility of Film	Forms Available	Methods of Application	Some Common Trade Names	Textile Uses
Clear, flexible, water-white. Softens on heating. Varies from soft, tacky types to hard, brittle resins.	Redissolves in original solvents.	Solutions. Emulsions.	Padding, coating, spraying, brushing.	Acryloid. Acrysol. Primal.	Used for body, increased strength, and abrasion resistance on cottons. Will improve luster and reduce yarn slippage. Used in coated finishes, either alone or in combination with other resins.
Clear, flexible, water-white. Softens on heating. Varies from soft, tacky types to hard, brittle resins.	Redissolves in original solvents.	Solutions. Emulsions.	Padding, coating, spraying, brushing.	Methacrol. RHoplex.	Used for body, increased strength, and abrasion resistance on cottons. Will improve luster and reduce slippage. Used in coated finishes, either alone or in combination with other resins.
Soft and flexible to brittle. Varies considerably in color. Ranges from transparent to opaque.	Some types redissolve in original solvents, others remain very resistant to solvent action.	Solutions. Emulsions.	Padding, knife, and roller coating. Usually desirable to set at elevated temperatures 250° F. or higher.	Aerotex. Amberloc. Aquaflex. Aroplaz. Flexamine.	Produce flexible, water-proof coatings. Binding agents for pigments and fibers. Add body. Useful in pigment-printing and dyeing formulations.
Flexible to semi-rigid.	Soluble only in solvents for cellulose.	Shredded linters. Solutions.	Applied from alkaline solutions. Precipitated by strong acids or dilution with water. May be dried on textiles before precipitating. Padding, coating.	Celfon. Kopon.	Binding agent for pigments. Fabric stabilizer for synthetics. Adds strength and increases abrasion resistance. Used for body and hand.
Clear, tough, flexible.	Redissolves in original solvents. Saponified by strong alkalis.	Solvent solutions.	Knife and roller coating.	Bakelite. Hercose.	Synthetic fiber, artificial leather coatings.
Tough, opaque, flexible.	Insoluble in solvents other than those for cellulose.	Fibrous powder. Alkaline solutions. Emulsions.	Padding and knife-coating. Precipitated by dilution of alkali with water or neutralization by acids.	Ankord. Ceglin. Sylvania Cellulose.	Binding agent for fibers. Durable size for hand. Pigment binder and adhesive, shrinkage reduction. Shrink-setting, crush-resistance, durable finishing effects, especially on synthetic fabrics.
Clear, slightly yellow. Possesses good flexibility.	Dissolved by ketones and esters.	Shredded linters. Solvent solutions.	Spraying, dipping, coating, brushing.	Cellulose Nitrate.	Artificial leather. Pigment binder in screen printing. Window shade cloth, glazed coatings, cloth lamination.
Transparent to opaque. Tough, flexible.	Insoluble in most solvents.	Solvent solutions. Water-in-oil and oil-in-water emulsions.	Spraying, dipping, knife coating, and padding. Should be dried at temperatures over 240° F.	Ethocel. Ethomulsion. Hercosett.	Binding agent for pigments. Gives full to stiff finishes of durable character, depending on type. Reduces yarn slippage; increases strength.
Clear, flexible. High tensile strength.	Redissolves in water. Insoluble in most organic solvents and oils.	10% aqueous solution. Available in different viscosities.	Can be padded in dilute solutions. Viscous solutions applied by knife or roller coating.	Cellosize WS.	Thickener in textile printing. Binder in back-fill mixes. Finishing of synthetics. Warp sizing.
Clear, tough, flexible. Polyhydric alcohols increase flexibility.	Redissolves in water. Insoluble in most solvents and oils.	White fibers. Can be obtained in different viscosities.	Thin solutions by padding. Viscous solutions by brushing, knife or roller coating.	Methocel.	Thickener for print colors. Binder in back-fill mixes. General finishing of cotton and rayons. Warp sizing.
Clear, tough, transparent.	Redissolves in water. Insoluble in most organic solvents and oils. Certain inorganic acids and salts tend to render film relatively water-insoluble.	White, granular powder.	A new cellulose derivative. Can be padded in dilute solutions, knifed on in either coating or back-fill machines.	CMC.	Possible uses: printing thickener, finishing material where clarity of film is important. Binding agent. Coating material where solvent and oil resistance is required. Warp sizing.

PROPERTIES OF PLASTICS

	Name of Plastic	Made From	Formula Of Polymer	Type	Soluble In
COUMARENE-INDENE	COUMARENE-INDENE RESINS	Coumarene and Indene (obtained from coal-tar distillates).		Cures on evaporation of solvents.	Most solvents, other than alcohols.
FORMALDEHYDE	MELAMINE	Cyanamide NH_2CN and Formaldehyde CH_2O		Thermosetting.	Alcohols, water.
	PHENOL	Phenol C_6H_5OH and Formaldehyde CH_2O		Thermosetting. Thermoplastic.	Alcohols, aromatic hydrocarbons, ethers.
	UREA	Urea $NH_2CO\,NH_2$ and Formaldehyde CH_2O		Thermosetting.	Alcohols, water.
ORGANO-SILICON	ORGANO-SILICON RESINS	Hydrolysis of alkyl silicones.		Thermosetting.	Aromatic hydro-carbons, alcohols.
PINENE	PINENE DERIVATIVES	Styrene, substituted styrene, and homologues.	Base Formula: 	Thermoplastic. Elastic.	Aliphatic and aromatic hydrocarbons.
POLYAMIDE	POLYAMIDE RESINS	Adipic Acid $(CH_2)_4(COOH)_2$ and Hexamethylene Diamine $(CH_2)_6(NH_2)_2$		Thermoplastic.	
PROTEIN	PROTEIN	Skim milk, corn protein, soybean protein.		Sets on evaporation of water.	Water. Formaldehyde incorporated in solutions improves water resistance of film.
RUBBER ELASTOMERS	BUTADIENE	Butadiene $CH_2CH\,CH\,CH_2$ and Styrene $C_6H_5CHCH_2$	 BUNA S	Thermoplastic.	Hydrocarbons.
	CHLOROPRENE	Acetylene C_2H_2 and Hydrochloric Acid HCL		Thermoplastic.	Hydrocarbons.
	POLYSULPHIDES	Dichlor-Ethyl Ether $(C_2H_4Cl)_2O$ and Sodium Tetra Sulphide Na_2S_4		Thermoplastic.	Hydrocarbons.
STYRENES	STYRENES	Benzene C_6H_6 and Ethylene C_2H_4		Thermoplastic.	Hydrocarbons.
VINYL and POLYVINYL	VINYL CHLORIDE	Ethylene C_2H_4 and Chlorine Cl_2		Thermoplastic.	Alcohol, esters, ketones; aromatic and chlorinated hydrocarbons.
	VINYL ACETATE and VINYL CHLORIDE COPOLYMER	Vinyl Acetate $CH_3COOCH\,CH_2$ and Vinyl Chloride CH_2CHCl		Thermoplastic.	Alcohol, esters, ketones; aromatic and chlorinated hydrocarbons.
	POLYVINYL ACETATE	Acetylene C_2H_2 and Acetic Acid CH_3COOH		Thermoplastic.	Alcohol, esters, ketones; aromatic and chlorinated hydrocarbons.
	POLYVINYL ALCOHOL	Made by hydrolysis of polyvinyl acetate.		Thermoplastic.	Water.

FOR TEXTILE APPLICATIONS

Nature Of Film	Solubility of Film	Forms Available	Methods of Application	Some Common Trade Names	Textile Uses
Tough, flexible. Colorless to dark and opaque.	Water and grease-proof.	Solvent solutions. Emulsions.	Padding, coating.	Cumar. Neville resins.	Possible applications: finishing agent for hand and body, binder, water-resistant finishes, laminating agent.
Clear, water-white, to light yellow. Brittle.	Insoluble in most solvents.	Solutions. Powder.	Padding and coating. Requires curing at temperatures of 275° F. or higher to set resin.	Aerotex. Lanaset. Melontine. Resproof.	Binding agent for fibers. Durable size for hand. Pigment binder and adhesive; shrinkage reduction. Shrink-setting; crush-resistance. Durable finishing effects especially on synthetic fibers and wool.
Yellow to dark-brown. Brittle.	Attacked by strong alkalis.	Solutions. Powders. Emulsions.	Padding and coating. Desirable to cure at temperatures of 300° F. in order to set resin. Some types set by air-drying only.	Ambertite. Bakelite. Beckacite. Catavar. Durez. Phenac.	Water-resistant and chemical-resistant finishes, when color is not important. Paler resins may soon be available.
Clear, transparent, brittle.	Insoluble in most solvents, except hot mineral acids and strong alkalis.	Solutions. Powder.	Padding and coating. Requires curing at temperatures of 300° F.	Aerotex. Aqua-Perm. Bakelite. Beetle. Formaset. Resifin. RHonite. Urol resins.	Shrink-setting and crush resistant finishes of durable nature, especially on synthetic and woolen fabrics. Durable finishing effects, such as glazed finishes on cotton.
Ranges from liquids at room temperatures to brittle film forms.	Resistant to most solvents, acids, and alkalis.		Relatively new, no application methods developed.	Dow-Corning silicones. G.E. dri-film. Tetroethyl orthosilicate.	Possesses good water resistance and chemical inertness. Resists high temperature.
Pale colors. Ranges from soft and tacky to hard and brittle.	Resistant to acids, alkalis.	Emulsions. Solvent solutions. Viscous liquids.	Coating, brushing, and padding. Temperatures high enough to evaporate solvents are usually all that are necessary to set resins.	Piccolastic.	Waterproofing, laminating, adhesives.
Clear, tough, flexible.	Insoluble in most solvents. Resistant to ageing, oxidation, and alkalis. Attacked by strong acids.	Fibers. Films.		Fiber 66. Nylon.	Synthetic fiber (nylon). Other textile uses not developed at present time.
From flexible to brittle; from clear to opaque.	Redissolves in water. Formaldehyde treated films may be almost insoluble. Attacked by alkalis.	Powders. Flakes. Solutions.	Knife and roller coating; padding. Drying required at temperatures sufficient to remove water satisfactorily.	Aqua-Perm. Aralac (fiber). Maco. Protovac. Zein.	Synthetic fibers such as Aralac. Binders in pigment printing and finishing formulations. Ingredient in warp sizing, especially for synthetic fibers.
Light tan to black. Tough, elastic, flexible.	Resistant to oxidation, ageing, heat, and abrasion.	Solvent solutions. Emulsions.	Coating and calendering; padding. Cured on heating with sulphur or sulphur compounds.	Buna N. Buna S.	Water-proof coatings and impregnations. Pigment binding agent. Industrial applications.
Light in color, tough, elastic, flexible.	Highly resistant to chemical and solvent action over a wide temperature range.	Solvent solutions. Emulsions.	Coating, calendering, padding. Not necessary to vulcanize.	Neoprene.	Coated and impregnated fabrics. Industrial applications.
Opaque. High rate of cold flow. Tough, flexible.	Resistant to oils and most chlorinated and aromatic hydrocarbons.	Solvent solutions. Emulsions.	Coating, calendering, padding, spraying, brushing.	Thiokol.	Coated and impregnated fabrics. Pigment binder. Various industrial applications.
Opaque, tough, flexible.	Relatively insoluble. Attacked by acids and alkalis.	Solutions. Emulsions.	Padding, knife, and roller coating.	Bakelite. Merlon.	As a binding agent; water-resistant impregnations. Durable finishes. New to textiles.
Tough, transparent, flexible.	Insoluble in hydrocarbons, water, and most solvents. Resistant to acids and alkalis.	Solutions. Emulsions. Powder.	Knife and roller coating, padding, calendering. Temperatures of 250° F. or higher desirable to form satisfactory film.	Amron. Geon. Koroseal. Saran (vinylidene chloride). Velon. Terson.	Water-proof coatings and impregnations. Pigment binder. Adhesive laminating material.
Clear, transparent, flexible.	Insoluable in hydrocarbons, water, and most solvents. Resistant to acids and alkalis.	Solvent solution. Granular powder.	Coating, spraying, dipping, calendering. Should be cured at elevated temperatures.	Vinylite. Vinyon (fiber).	Synthetic fibers (Vinyon). Chemically-resistant coatings and impregnations. Water-resistant finishes. Laminating agent.
Clear, transparent, flexible.	Insoluble in hydrocarbons, water, and most solvents. Resistant to acids and alkalis.	Emulsions. Solvent solutions. Granular powder.	Padding and spraying; dipping; knife and roller coating; calendering. Heating at elevated temperatures improves durability.	Polyvinyl acetate. Vinylseal.	Laminating and bonding agent. Finishing material for hand, durability, and oil resistance.
Tough, transparent, flexible.	Insoluble in oils and most organic solvents. Soluble in water.	Granular powder. Water solutions.	Padding and coating. Heat curing and treating with formaldehyde, chromium, and metallo-ammonia compounds improves water-resistance of film.	Polyvinyl alcohol. P.V.A.	Adhesive; stiffening and bodying agent. Pigment binder. Emulsifying agent.

PLASTICS Provide Bond For Applying Pigment Colors

HIGHLIGHTS: Synthetic resins anchor pigment colors firmly to fibers. They permit production of prints and plain shades resistant to repeated laundering and dry cleaning. Further improvements in plastics are expected to broaden field for pigments in textile industry.

By WINN W. CHASE
Aridye Corp.

ONE APPLICATION for synthetic resins and other plastics which is of growing importance in the textile industry is as bonding agents for pigment colors employed in printing and dyeing. Pigments have been used for many centuries for coloring textiles, but it is only within the last decade that methods have been developed for anchoring the pigments firmly to the fibers, thereby making it possible to produce printed designs and plain shades which exhibit a high degree of fastness to laundering and dry cleaning.

EARLY PRACTICE. At one time, blood albumen was employed almost universally for fixing the pigments to the fibers. However, use of albumen did not result in satisfactory fastness to washing, and many investigators worked on the problem of developing a permanent binder, but with indifferent success. In one process, for example, glue or casein was substituted for albumen as the fixing agent; and the fabric after being printed was subjected to formaldehyde fumes to render the casein insoluble in water.

During the 1930's, so-called lacquer printing, in which nitrocellulose or ethyl cellulose was used as the bonding agent, came into prominence. This process has enjoyed considerable vogue, but has definite limitations, one being that the printed parts of the fabrics are usually stiff.

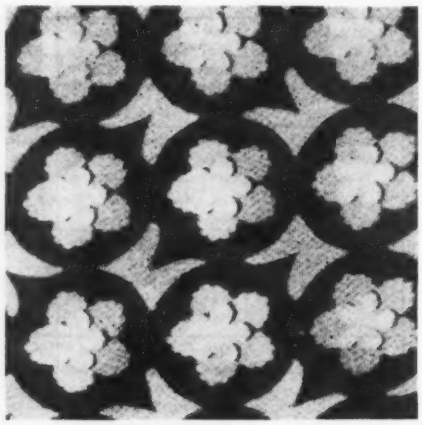
About six years ago, a process was introduced for printing with pigmented emulsions of the water-in-oil type. In this process, urea-formaldehyde and alkyd resins were employed as the bonding agents. Use of these resins permitted production of pigment prints which would withstand repeated laundering and dry cleaning. Later, the process was adapted to the production of plain shades.

METHODS. Today there are four principal methods for applying pigment colors to textiles. They are:

1. Water-in-oil emulsion system.
2. Oil-in-water emulsion system.
3. Solvent dispersion system.
4. Aqueous dispersion system.

One characteristic which is common to each of these four systems is that synthetic resins or other plastics are employed as the bonding agent for the pigments. Among the materials which are being or have been used are urea-formaldehyde; melamine-formaldehyde; alkyd, phenolic, vinyl and cumarene resins; rubber and synthetic rubber; ethyl cellulose and hydroxy cellulose ethers; and modified starches. Some of the compounds have been restricted to military uses.

CONTINUOUS OPERATION. Through the last three years, a very high percentage of the pigment colors consumed by the textile industry has been employed in dyeing fabrics for military use. These fabrics include shrimp netting, burlap, osnaburg, twill, canvas, duck, and marquisette. In many instances, it has been possible to incorporate mildewproofing, flameproofing, or other finishing compounds in the padding liquor, thereby permitting dyeing and finishing to be carried out in one continuous operation. These continuous processes have resulted in large increases in production and have contributed greatly to the war effort. Further, pigment colors have proved useful for application to Fiberglas, nylon, and other synthetic fibers which are difficult or impossible to dye satisfactorily by any other means.



Plastics were used to bond colors to this fabric. Courtesy Aridye Corp.

Before the war, the chief use for resin-bonded pigment colors was for printing cotton fabrics, although several million yards of pigment-dyed fabrics were produced. During the war, the major advances have been made in producing plain shades on Army fabrics. A number of new and improved resins have been developed, and the possibility of utilizing them as bonding agents for pigment colors is being explored in the laboratory and in plant tests.

Although the problem of crocking, which sometimes occurs in the use of pigment colors in heavy shades, has not yet been completely solved, and the fastness to washing of pigment colors applied to wool or other animal fibers is still not entirely satisfactory, there is good reason to believe that further improvements in synthetic resins and other plastics will reduce or eliminate these difficulties. This will open the door to an even more widespread use of pigment colors than can be expected with the bonding agents now available. In any event, because of their definite advantages over soluble dyes for many specific purposes, it is certain that pigment colors will find a greatly extended use after the war in the printing and dyeing of textiles, including fabrics made from both natural and synthetic fibers.

RESINS *on Textiles Improve Even Good Fabrics*

HIGHLIGHTS: New developments in resin application are imminent. Methods for removing finishes to permit reworking of goods need developing. Changes in fabric specifications may be made, due to consumer demand.

By DR. J. EDWARD LYNN
Stamford Research Laboratories, American Cyanamid Co.

THE USE OF RESINS for textiles in general has kept pace with the uses of resins in other fields. Considerable progress has been made to date, and the speed of resin utilization is constantly being accelerated. The original concept of the function of resins in textiles was to fill low-count fabrics so that they could enter the quality field. Although this idea still has staunch adherents, the textile industry as a whole now realizes that resins help to eliminate undesirable fiber characteristics and add to desirable properties, so that the ideal role for textile resins is to enhance quality and make good fabrics even better.

ADVANCES. In recent years, several significant advances have been made in the utilization of resins for textiles. The first large use of textile resins was to impart crease resistance, mainly to rayon fabrics and occasionally to cotton. Recent discoveries indicate that resins can minimize the fabric loss usually associated with sanforizing and sponging. Wool shrinkage control during wet cleaning can be achieved by a resin treatment, without danger of fiber damage. Rayon fabric stabilization to shrinkage and elongation shows promise of being accomplished through resin application. Chase[1] has indicated that resins applied to cotton roving allow the formation of threads closely approaching the theoretical tensile strength value for cotton. In the same connection, the National Cotton Council at Austin, Texas, is doing interesting work on cotton roving and raw stock.

REQUIREMENTS. The general requirements for resins are to furnish durable finishes with high resistance to creasing, abrasion, dimensional change; with drapy and mellow or stiff hands, good tensile strength, and no chlorine absorption. They should have no bad effect on dyes; rather, they should increase dye and crock fastness, and so on. Most of these specifications can be met by resins; but, obviously, no one resin can accomplish all. Judicious selection of resins to furnish the most important characteristics for each fabric should yield satisfaction, but Utopia should not be anticipated.

Sock on the right foot had resin treatment before washing; shrunken sock on left was untreated.

"Durable" finishes present problems both to the finisher and to the user of reworked stock. While it is extremely important from the consumer's point of view that the finish be permanent for the life of the garment, at the same time it is of obvious importance to the textile finisher that he be able to remove this finish in case some error has been made in his operations and he must either redye or refinish.

Methods of analysis to determine the type and quantity of resin applied are of interest. Probably the most complete compilation of resin analyses is scheduled for publication in the spring as Chapter I, Volume V, of "Protective and Decorative Coatings" edited by J. J. Mattiello and published by John Wiley Sons. Since the science of determining resins on textiles is in its infancy, even this reference will not be completely satisfactory to all.

A possible deterrent to the use of resins on textiles is strict adherence to current specifications. These specifications have been evolved from years of experience with non-resinated fabrics. Resin-treated fabrics are usually required to meet all such specifications without regard for actual use conditions. Because an untreated fabric needs to possess a certain minimum tensile strength to give satisfactory service, must a resin-treated fabric also pass the same tensile strength test, even though it has double the abrasion resistance or has excellent shrinkage control? For example, the high abrasion resistance would increase the resistance to flex breaks at elbows, knees, and seat of garments because the threads would be larger for a longer time; the shrinkage control would minimize breaks caused by excessive force used to stretch an article back to size. Should not such resin-treated fabrics be judged by specifications based on actual end-use requirements?

The prospects for resins on textiles are exceedingly promising, but much is still to be done because only the first stumbling steps have been taken. The profits are waiting for those willing to spend the time, material, and initial costs of experimentation.

[1] Chase, H. M., American Dyestuff Reporter 33, Page 474, November 6, 1944.

Machine Measures KNITTING FACTOR Of Synthetic Yarns

By L. E. ROSSITER, *Chief Chemist,* and E. A. ROBINSON, *Technical Director*
National Oil Products Co., Harrison, N. J.

HIGHLIGHTS: Wax treatments normally cause greater drag than oil. Variation in tension while knitting is more serious than uniformly high or low tension.

THE KNITTING of fine fabrics with the ever-increasing number of synthetic fibers has brought a greater awareness of the different physical properties existing in the individual yarns and their relation to the cost and quality of the finished goods. It is fortunate that adequate testing methods exist for the determination of the numerous physical constants involved. There is, however, one physical property which has been somewhat neglected in this respect. This is the frictional characteristic of the various fibers with the related problem of yarn lubrication.

Various procedures have been suggested for measuring the frictional coefficient; among them is an instrument developed in the laboratories of National Oil Products Co. This instrument automatically records the time for a rider of known weight to slide along an inclined length of yarn. The rider can be made of any of the various materials with which the yarn comes in contact during processing, such as metal and glazed porcelain; or it can be made of the yarn itself, in which case it is possible to determine inter-fiber friction. The time required for the rider to slide along a fixed length of yarn held at a definite inclination permits the calculation of the coefficient of kinetic friction.

FRICTION DEFINED. The coefficient of kinetic friction may be defined as the force required to maintain sliding motion. The greater the force required, the higher the coefficient of friction value. It would appear that friction can be attributed to the adhesion that occurs between those surfaces in actual contact with each other. Apparently, there is unsatisfied molecular attraction at these surfaces which causes a welding action of the points in actual contact. The force behind this welding action is probably equal to that contained in the solid itself. This accounts for the wearing away of the surfaces. Under certain conditions, particularly between non-conductors, this force can pull electrons away from the molecules, thereby it creates masses of free electrons and leaves behind an equal charge of protons. This is the condition which results in the formation of static.

Friction between moving bodies is minimized by lubrication, since the lubricant reduces the number of contacts between the surfaces; and in this way the intensity of the welding action is lessened. The wearing effect of friction is then largely absorbed by the lubricant, which if sufficiently fluid, is left relatively intact. The possibility of generating static electricity can still exist even in the presence of a lubricant, but this can be materially reduced by the selection of electrical conducting lubricating constituents. Experiments seem to indicate that hydrocarbon lubricants, which are of the non-conductor type, when applied on non-conducting material, such as textile yarns, have a greater tendency to allow the formation of static charges than do lubricants with an end grouping in the molecule having an attraction for the solid face. Such a lubricant may become orientated with the active end of the molecule directed toward the solid face rather than form a random disposition which may be the case with non-polar molecules.

KNITTING FRICTION. In processing synthetic yarns into a knitted fabric, friction is created by the yarn running through the various guides, tension devices, and knitting needles. Friction is also developed when the yarn slides over itself as in the case of drawing over end from a horizontal cone package. Inter-fiber friction is caused by twisting and flexing the yarn.

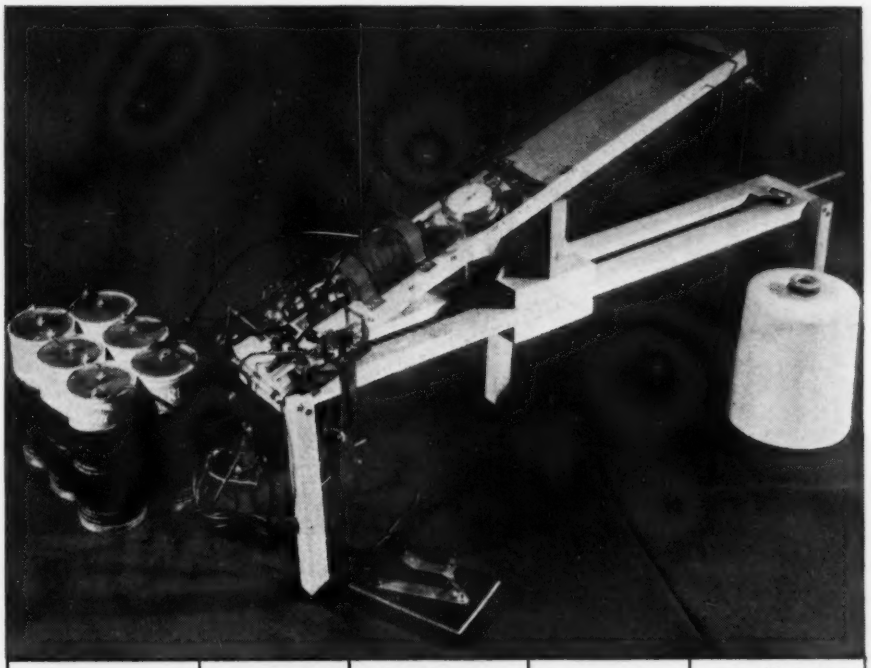
Lubricants, sizes, or yarn treatments

whatever type determine the frictional character of the yarns to which they are applied; although it has been found that the yarn exerts an influence even through the lubricant. It is obvious that yarns with high frictional values will have a greater wearing effect upon the various yarn guides and knitting needles and will cause cuts which, in turn, result in fractured filaments and similar defects. A yarn with an extremely low friction is not too desirable, for it can cause trouble by sloughing from the cone package during knitting. It is quite possible, however, to compensate to some extent for yarns of high or low friction by proper adjustments of tension devices.

A problem more difficult than high or low yarn friction is a lack of uniform friction throughout the yarn. This is a defect that is not easily corrected, for few tension devices are sufficiently flexible to compensate for it. A yarn showing wide variations in coefficient of friction can hardly be expected to yield satisfactory stitch formation during knitting. Static caused by friction is usually not a problem in knitting, except that it may be responsible for knots occurring in the prior processing of the yarn.

Experiments conducted with the inclined-plane friction tester, in which a variety of yarn treatments were evaluated, have shown the value of the coefficient of friction value in predicting the utility of such yarns in a subsequent knitting operation. In this work, a 75-den. 20-turn cellulose-acetate yarn was employed after it was first washed in carbon tetrachloride to remove any contamination. The several treatments were then applied from a solvent or water emulsion to the extent normally recommended for the particular product. The data collected is shown in the table under the photograph.

These treatments represent products being used for sizing hosiery yarns; and, with the exception of the oils, they could be considered generally satisfactory for this purpose. The yarns having friction values of 0.330 and over showed poorer knitting results than those yarns under this figure. It is obvious from the data that in some cases the yarn treatment does not lower the friction of the untreated yarn. Treatment "H" with a coefficient of friction of 0.370 actually was higher than the untreated yarn; however, this protein size plasticized with a soluble oil is not generally used for knitting yarns. This high frictional value was reflected in the knitting operation, for it was the poorest knitting yarn of the group. It was not possible to run this particular test sufficiently long to make actual wear determinations.



Product	Type Treatment	Method of Application	% Applied	Coefficient of Friction
A	Wax	Solvent	10.0	0.353
B	Wax	Solvent	10.0	0.333
C	Wax	Solvent	9.5	0.316
D	Wax	Solvent	10.0	0.350
E	Oil	Solvent	9.0	0.285
F	Oil	Solvent	12.5	0.325
G	Wax	Emulsion	9.0	0.289
H	Protein/Oil	Emulsion	5.0	0.370
Untreated Yarn	——	——	—	0.350

Tests on the machine above showed these variations in the lubrication qualities of materials used in treating knitting yarns.

WEAR TESTS. A second test was conducted using a 75-den. viscose yarn, and this was prepared in sufficient quantity to make a wear determination. A portion of the yarn was treated with product "D," and a friction test showed a value of 0.340. A second portion of the yarn was prepared with treatment "G," and the friction value determined at 0.291. The two yarns were then thrown 20 turns and knit simultaneously on different heads of a full-fashioned machine with new needles. In about two weeks, microscopic examination showed signs of wearing in the knitting needles with yarn "D". Yarn "G" ran for 3 months when the supply became exhausted. No signs of wear were apparent up to this time. Perhaps the most startling point of difference in the two yarns was that the stockings from yarn "D" averaged 2 in. shorter than yarn "G".

Experiments with the friction tester have shown that the wax treatments for knitting yarns generally have a higher frictional value than oil treatments. However, the wax treatments are more desirable than oil on the higher twist yarns because of their sizing properties necessary for twist setting and to prevent kinking. Early experiments with the friction tester had resulted in the development of a synthetic ester of extremely low friction value. An experiment was conducted wherein a quantity of this ester was added to a commercial wax treatment for hosiery yarns. The object was to lower the friction value of the treatment without unduly altering its sizing properties. A friction test on a 100-den. viscose yarn of 20 turns with the unaltered wax treatment showed a value of 0.301. An addition of 10% of the ester was made to the wax, and a similar yarn was treated to the extent of the first. The friction value on this was 0.271. There was no apparent change in sizing properties of the wax.

By employing the inclined plane friction tester, the coefficient of friction of yarns treated with new chemicals can be ascertained. With this information, the suitability of these chemicals for yarn treatments can be determined.

Pvt. William C. Brown for 15 years with Riverdale Mills, Enoree, S. C., tends slubbers at Lindale, Ga.

S/Sgt. John G. Dziadula, formerly with Putnam Finishing Co., and Belding-Heminway Co., at Pepperell Mfg. Co., Lindale, Ga.

Pvt. Esbon D. Jacks, an old employee of Pepperell Mfg. Co., is back on his original job as loomfixer.

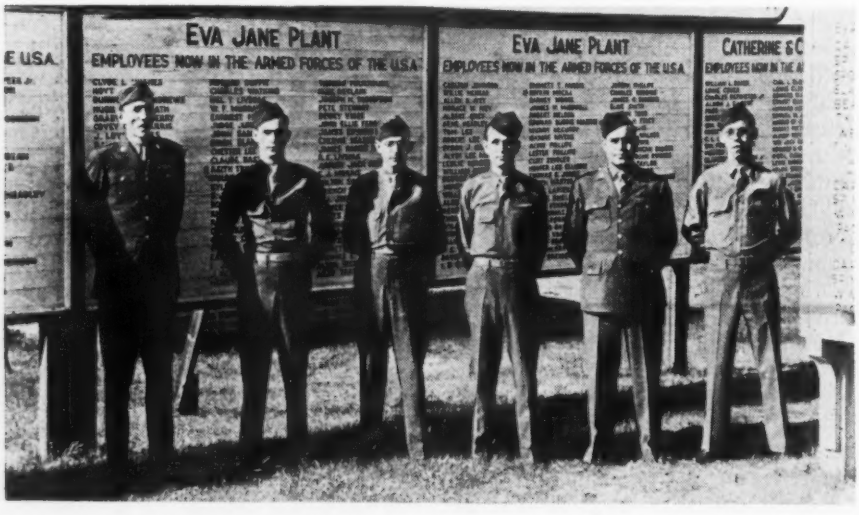
Soldiers Assigned to Help Mills MAKE DUCK

HIGHLIGHTS: Critical shortage of duck and tent twill necessitated special action. Soldiers assigned to work in textile mills. Helpful effect on morale, with absenteeism reduced.

By EARLE MAULDIN
Southern Editor, TEXTILE WORLD

AT 67 PLANTS, located in the South, more than 1,300 officers and men from the armed forces are working closely with civilians to increase the production of the much-needed cotton duck and shelter-tent twill. Their presence has boosted morale greatly.

Among these are 36 field officers and six supervisors, reporting to Maj. James P. Walsh who is chief of the Army Service Force's Cotton Duck Special Project Team, a long title and an important job. Headquarters for this branch has been established at 50 Whitehall Street, Atlanta, Ga., where an adequate staff keeps in touch with its widely scattered workers.



A military group assigned to Eva Jane Plant of Avondale Mills: (l. to r.) Cpl. William Blair, Cpl. James C. Smith, Pfc. Edward Burk, Pfc. Raymond Blackwell, Pvt. Emmett Tankersly, and Pfc. Buford Wright.

The alarming shortage of cotton duck and shelter-tent twill, and the textile mill labor shortage which directly contributes to the material shortage, indicated the necessity of some such step as the Special Project Team. The results, according to a quick survey of plants in Alabama and Georgia, have proved highly satisfactory.

The men assigned to work in the various mills have been chosen from among those with previous textile mill experience and training. While the nature of their previous work may be different from the tasks now assigned, at least the workers are in general more or less familiar with their new duties. Usually the men are assigned in groups of 20 to 50, and each is given a 90-day furlough. They are instructed to wear fatigue uniforms

while at work in the plant and regular uniforms at other times. Living arrangements vary from place to place, and this phase of the arrangement has become quite a serious problem at some plants on account of the housing shortage.

The officer serving with the group has many and various activities. His rank—from second lieutenant to major—depends on many factors such as the size and importance of the mill or mill group, the number of men assigned, the necessity for various activities, the availability of a particular officer, etc. The officer's first duty is to familiarize himself with the problem facing the management. In approaching the question with an open mind and from a fresh viewpoint unhampered by traditions, he is frequently able to suggest a reasonable solution. His work in many cases involves community contacts, radio programs, news items, talks before local organizations, work with WMC and WPB, school contests, moving picture shows, and any other means his imagination can devise to create a consciousness in the minds of the public of the pressing needs for help, and still more help, in the mills.

The example set by the men in uniform working at the machines steadily day by day, the interviews with habitual absentees by officers in uniform, the carefully planned program of education—all these have contributed to reduce the absentee percentage in the area by 2 to 3%. At the same time turnover has been reduced 40%; and actually there are 4,000 more workers employed at time of writing than at the time the plan was adopted.

The Army men assigned to work in the plant have no military duties. They work on such shifts, and on such tasks as are assigned by the management. In most of the mills reached in this survey they are working eight hours a day, on the second or third shift. The officers are acting principally in an advisory capacity. It is understood, however, that should any infringement of duty or conduct occur, the officer has the authority to order the soldier back to the military station from which he was assigned. It speaks well for the service that such action has been necessary in only rare cases.

The men are being used to best advantage in the mills. In some cases preliminary training is required. It frequently happens, however, that an old employee is assigned to his original job and drops easily into the familiar routine. It is much easier on the housing situation when old employees are returned, as their homes are already established and available. Strangers arriving in a community must be provided for and this is often a strain on the village accommodations.

A late development of the plan, which at present is set up on 90-day furloughs for the mill-working soldier, is to transfer certain skilled hands, such as loomfixers, doffers, weavers, and section hands, to an enlisted reserve corps in which they are permanently assigned to the mill and to the job, without any military duties or responsibilities. They are not subject to military discipline, they do not wear uniforms, they draw no Army pay. As long as they stay on the job they remain in this reserve corps, but should they leave the work for any reason the management must report the fact and the Army then returns the man to full military duty.

Men working in uniform, men willing and eager to do their duty on the firing line or on the home front, men from the Army with a serious determination to do their best to supply the Army with every need—all this has stimulated interest in the task facing the mills today.

"We have found these men eager to give an honest day's work," said one mill executive, and invariably it is reported that the effect on the morale of the entire plant has been most beneficial.

Shown inspecting some of the Army equipment made of the vitally important cotton duck being produced in southern cotton mills are (l. to r.) Col. Robert T. Stevens, Procurement Division, Office of the Quartermaster General; Maj. Gen. Edmund B. Gregory, the Quartermaster General, and J. A. Krug, head of the WPB.

Col. D. B. Faust pins the Silver Star "For Gallantry in Action" on Pvt. Frederick G. Fleischer, of Salisbury Mills, New York, in a ceremony at Anchor Duck Mills, Rome, Ga., where the 20-yr. old veteran of the Italian campaign is employed as an inspector.

Meeting the Textile Mill's SMOKING PROBLEM

HIGHLIGHTS: Smoking undesirable from fire-prevention standpoint unless safeguarded by segregated and supervised areas. Smoking in production departments and toilets objectionable. Proper control and employee cooperation bring satisfactory solutions in many mills.

By H. S. KNOWLTON
New England Editor, TEXTILE WORLD

DEMAND BY EMPLOYEES for smoking privileges on textile mill premises presents management with a serious problem. The rapid increase in use of tobacco by both men and women in recent years is self-evident everywhere. It is impossible to turn the clock back to the times when smoking was looked upon as an evil habit for men and still worse for women. A recent checkup in a large cotton mill indicates that 80% of the employees use cigarettes or pipes (relatively few cigars).

The pleasure and relaxation of smoking undoubtedly contribute something to morale if it is not overdone. The effect on production is not easy to evaluate. Some managements hold that any absence from plant machinery, other than necessary short withdrawals, is objectionable, while others see little economic harm if the absence is confined to brief periods during which processing equipment is maintained in close to normal operation.

FIRE RISK. Relation of smoking to fire hazard is vitally important. Where no smoking is permitted, the fire risk is minimized. Where there is failure to empty pipes, or careless disposal of cigarettes, cigars, and matches before entering locker rooms or operating departments, the fire hazard is of course present even though smoking ceases at the mill gate. Smouldering pipes in pockets present a greater danger than cigarettes. Smoking in production departments, particularly where flammable materials are exposed, is regarded by modern executives and insurance engineers as absolutely intolerable. Somewhat less objectionable is smoking in toilets, which is, however, easily accompanied by concealed loafing.

In the experience of one large insurance organization dealing with

Workers at Fitchburg Yarn Co., Fitchburg, Mass., may smoke in the company cafeteria which is located in a separate building reached by covered passageway from the mill. There are strict rules against smoking in toilets or in the mill proper.

high-quality industrial properties, almost 9% of the reported fires were attributed to smoking or matches, and in another group of still wider coverage 14.6% were so listed. The insurance company attitude is that smoking, being a recognized fire hazard not essential in plant operation, should be completely prevented if possible, or at least limited to safe locations where there is no material that can be ignited.

Representative textile mills are in agreement with the latter plan in cases where smoking is allowed. Many mills prohibit it completely. Still others take some middle ground. So important is the fire prevention angle that in many cases excellent cooperation is being had from labor-union representatives in backing up strict enforcement of smoking regulations. Undoubtedly there is room for improvement in the discipline of some mills in relation to smoking; but there is widespread understanding of the importance of the fire prevention angle, probably due in large part to the excellent work of safety engineers, house organ editors, and personnel directors, as well as to outside movements.

FOR "SAFE" SMOKING. Observance of the following principles laid down by a prominent insurance organization is apparent in a number of the mills covered in this inquiry:

1. Provide safe, supervised, and convenient areas where smoking is permitted. Smoking should be confined strictly to these prescribed areas, and to stated periods where desired for simplified control.

2. Toilets, rest rooms, and similar service areas should be made safe for smoking.

3. For non-manufacturing and non-storage areas, such as offices, salesrooms, residential areas, etc., where smoking is allowed, a continuing educational campaign for "safe" smoking should be carried on.

4. Unrestricted smoking by employees while at work makes regulation difficult, favors general smoking carelessness, and can be expected to react unfavorably on fire-loss prevention. Such a practice should be firmly discouraged.

Some mills have established smoking areas in stair towers or tower adjuncts; many permit smoking in cafeterias when these are open, and others have partitioned off quarters adjoining production departments. In some cases a room fitted with a few benches suffices; in others smoking facilities are attractively furnished with tables carrying reading matter, ash trays, and comfortable chairs. The use of ventilating fans is common, and in some cases the fittings include excellent lighting, steam heat, safety matches or electric lighters, sandpaper tabs fastened to the wall, and fireproof receptacles.

SUPERVISION. Adequate supervision of smoking areas is recognized as essential to satisfactory operation, whether indoors or outside, and whether in continuous or intermittent use. The degree of such supervision varies greatly according to local conditions. In some cases a second hand is held responsible for seeing that employees spend only reasonable periods in smoking areas. In many instances employee cooperation is praiseworthy and little formal oversight is called for beyond the usual supervision of production conditions. Continuous supervision is usually necessary in zones marked off in building areas or yards. Physical segregation from manufacturing departments is coming to be widely favored. The trend is toward small smoking rooms intelligently distributed, which may accommodate from a dozen employees to 25 or 30, preferably the smaller rather than the larger. Present day managements favor "short smokes" with just a few comrades instead of larger assemblies with their time-consuming psychology.

In one cotton manufacturing plant the following bulletin is posted in the smoking rooms (open during all shifts) to enlist cooperation of employees:

NOTICE

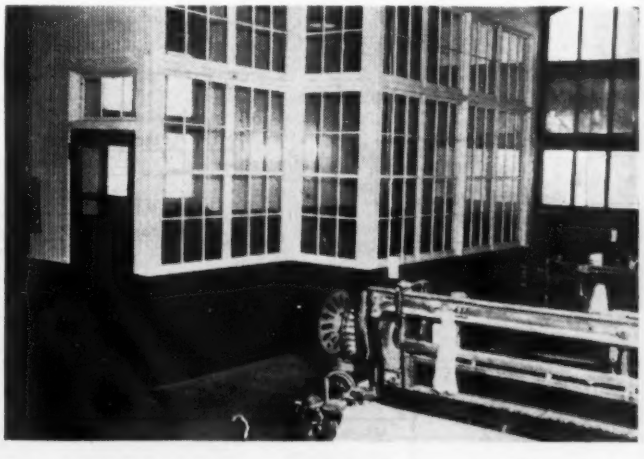
This smoking room is operated at stated hours for your use. Employees who abuse the privilege of coming here by engaging in horseplay, destroying company property, neglecting their work to come here, or staying an unreasonable length of time are jeopardizing the continuance of this smoking room.

In this plant the use of the smoking privilege appears to be reasonable and conscientious.

CONCLUSION. Textile managements with which the writer was in contact during the preparation of these comments concur as to the importance of segregation and supervision. In reality they are trying to make the best of a situation embodying definite handicaps. There is a growing appreciation of the importance of fire prevention where smoking is permitted on mill premises.

A reasonable allowance of smoking-room space, based on a typical mill's practice, would be an 18x20 ft. room at least 8 ft. high, with a 10-in. ventilating fan and four 25-watt lamps, providing for 25 employees at a time, four such areas being assigned per 1,000 employees on the payroll. Too much emphasis cannot be laid upon the importance of a fire-barrier separation between smoking and production rooms. In a word, smoking by textile-mill employees may be something of a headache to management, but it can be made commendably safe and reasonably endurable if proper arrangements and adequate supervision are provided.

A restful and cleanly atmosphere is provided in this smoking room for women employees of a large New England textile mill.



Enclosed smoking room in weave room of Naumkeag Steam Cotton Co., Salem, Mass. Headpiece shows another room at Naumkeag.

Operating a Finishing-Plant MACHINE SHOP

HIGHLIGHTS: Machine shop, power plant, and village maintenance at Union Bleachery are under plant engineer. Operating mechanics (or fixers) under shop foreman. New parts made for issue from supply room. Records allow proper routing of work and charging of cost. Used parts and materials salvaged.

UNION BLEACHERY, of Greenville, S. C., has a smooth-functioning machine shop set up under the plant engineer to handle all plant and village maintenance. A study of the organization and functioning of this particular unit can be profitable to master mechanics in various branches of the textile industry, although the shop handles a heavier load and a greater variety of jobs than the average cotton-mill shop.

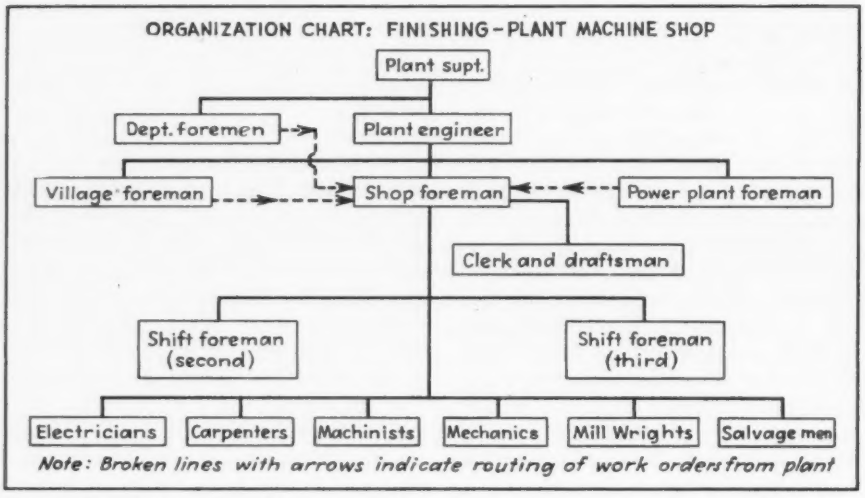


Fig. 1. Organization of production and shop-maintenance crews for a large finishing plant.

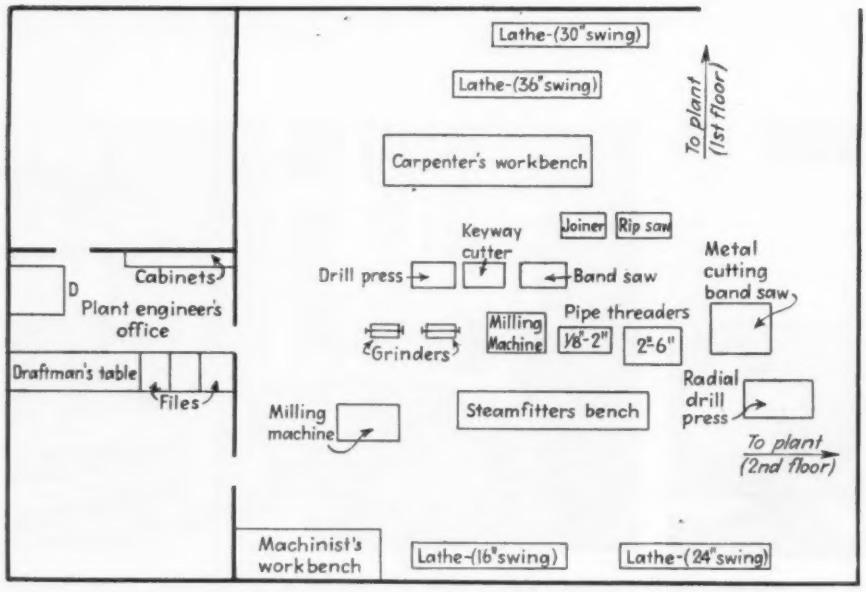


Fig. 2. Approximate layout of machines in the shop at Union Bleachery.

To fulfill its function of maintaining plant and property at the highest mechanical and physical efficiency, this finishing-plant shop is organized as to personnel and equipment to suit the special requirements of the plant and property which it serves. While no two shops can be operated in exactly the same way because of differences in the plants they service, phases of this shop's operation which may profitably be studied are as follows: (1) shop organization, (2) training personnel, (3) machine layout, (4) work assignment, (5) handling materials, (6) cost distribution, (7) records, and (8) salvaging materials.

SHOP ORGANIZATION. This shop is under the general direction of the plant engineer (see Fig. 1). Under him is a shop foreman who lines up the personnel so that work-orders are received and carried out systematically. Since a machine shop is a service organization and since much work of an emergency nature is performed, the organization and procedures are made as simple and as flexible as possible. Foremen and overseers are able to requisition jobs to keep productive machinery running without having to go through a lot of red tape.

An interesting feature of this plant's organization (Fig. 1), is the fact that the plant-operating mechanics work under the shop's supervision rather than the department overseers. This is somewhat similar to the specialized maintenance program described in TEXTILE WORLD, December, 1944, whereby fixers are put on specialized work under a maintenance supervisor.

TRAINING PERSONNEL. Training of apprentices to fill key jobs in the shop is done by assigning helpers to work with experienced specialists. Helpers are allowed to work on as many different types of jobs as possible, and the more experienced ones are put on general emergency repair to gain further experience.

In this area pre-employment and up-grading training can be secured in vocational schools equipped for machine-shop instruction — particularly the Parker High School, Greenville, S. C. This vocational school under its director, Loui Greet, has worked with

Union Bleachery and other Greenville-area mills in training apprentices.

MACHINES LAYOUT. Arrangement of machinery in the shop is such as to afford plenty of space for storage, movement of materials, and workbenches. The size and quantity of parts to be handled, the movement of work from one machine to another, and factors such as lighting, safety, and convenience all affect the location of the machines, workbenches, and storage areas. The general arrangement of the shop can be seen in Fig. 2.

WORK ASSIGNMENTS. Shop crews are organized (Fig. 1) on three shifts under a shift foreman, with the first-shift foreman in charge. The first-shift foreman has a clerk and draftsman who handles records, requisitions, route orders, makes drawings for machinists, and at times acts as an assistant machinist.

Mechanics, electricians, carpenters, and millwrights work out of the shop, covering general maintenance and repair in the plant. General village maintenance is also done by some carpenters and electricians. Major duties of these specialists are outlined in the chart at Fig. 3.

MATERIALS HANDLING. Stock required for any job is requisitioned from the supply room as needed. Anything not in stock is ordered by the shop foreman through the purchasing department. Standard items of stock are not allowed to fall below a safe minimum before re-ordering.

(*Continued on page 190*)

General Duties of Shop Specialists—Finishing Plant

Specialists	Assignments
Machinists	Operate lathes, milling machines, drill presses, shapers, etc., making parts to specifications. Do some machine repair in plant, when needed; and handle welding.
Mechanics	Fix and repair productive machines in plant, and handle steamfitting, plumbing, and general repairing.
Electricians	Oil motors and maintain and repair all electrical equipment, except rewind motors.
Carpenters	Handle plant and village carpentry repairs and painting.
Millwrights	Install new machines and relocate machines in plant.
Salvage Men	Sort all junk and return usable parts for repair or stock.

Fig. 3. Chart of major duties assigned shop specialists.

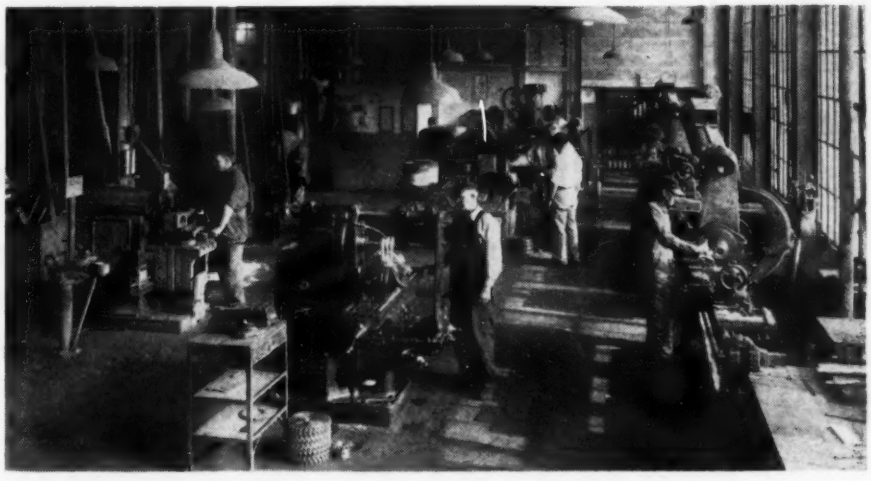


Fig. 6. View in Union Bleachery's machine shop

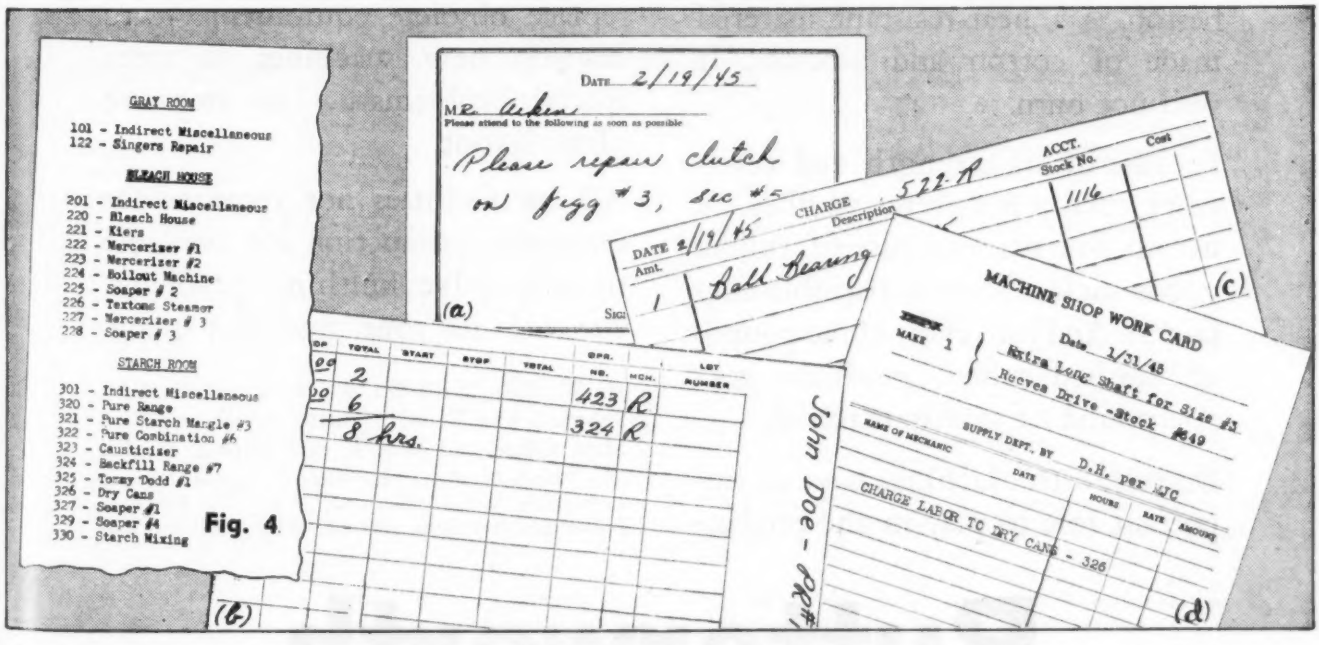


Fig. 4. Job charge sheet (above at left) Fig. 5. Record forms for shop are kept to a minimum: (a) Job-requisition order. (b) Time card, (c) Materials requisition order. (d) Cost-distribution card.

Camping Out—War Style

Airmen who are forced down in desolate regions have their cooking utensils along. A new collapsible container made of asbestos fabric impregnated with synthetic rubber is carried for emergency use.

This recently developed fabric, Asbeston, is a heat-resistant material made of cotton and asbestos. It will not burn.

Because of its strength and versatility, cotton is a preferred fiber for use in the manufacture of rubber goods such as these collapsible containers. And into every three pounds of finished rubber products, goes one pound of textile material.

Butterworth Machines have an important role to play in the production of every textile necessity—bleaching, boiling-out, drying, calendering, dyeing.

The cooperation of Butterworth Engineers is freely offered to mills seeking to achieve increased productive capacity . . . to repair or replace obsolete equipment . . . to develop new machines to meet special problems . . . to improve plant layout.

All our facilities not required for Ordnance production are available to help solve finishing problems, and aid in your post-war plans.

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Butterworth

SCHEDULE Your Spinning-Frame Maintenance

HIGHLIGHTS: Systematic roller cleaning is essential for continued production of good yarn. Continuous work suggested so that each frame is overhauled once every two years. Inspection and yarn testing required.

By HORACE L. PRATT

IN MOST DISCUSSIONS ON SPINNING, it is customary to take up fixing and overhauling last; whereas, it seems that this should be one of the first items to receive attention. Even new frames require some attention to keep them functioning properly, and certainly old frames will need constant care to keep them producing good yarn.

Many regular fixers were formerly doffers that were promoted to fixer through seniority, rather than because of any mechanical ability. If possible, such men should be given some sort of training, using the best means available, in the methods and practices of fixing. If they are to do the oiling, they should be taught the correct methods of oiling and the kinds of oil to use. A good fixer and a good spinner are a combination that is hard to beat when it comes to producing good yarn. Because of the multitude of small parts on a spinning frame, a fixer

SCHEDULE I

1. Personnel required:*

1 Overhauler (man).
1 "Head" or tear-down man.
2 Helpers (men).
1 Blow-off hand, boy or girl, who also runs errands.
4 Experienced roll cleaners (girls)
4 Helpers (girls).

13 Total

*Note: *The personnel required will be determined by how rapidly the work must be done and by how many frames can be stopped at one time. The above list of help should take care of at least two frames, and possibly the third frame will be stopped and partly torn down before the first is quite ready to run. This crew should complete four frames per eight-hour shift.*

II. Equipment Needed:

1. One set of regular section man's tools.
2. Air hose for blowing off.
3. Stiff brushes for cleaning steel rolls and ring rails.
4. Wiping waste.
5. Aprons for cleaners.
6. Pail for greasy waste.*
7. Racks for steel rolls.
8. Extra-long draft aprons, rolls, and studs for draft gears.
9. Oil cans, gear "dope," etc.

*Note: *Greasy waste should not be left in the mill overnight, but should be removed to a safe place to prevent spontaneous combustion.*

III. Cleaning Steel Rolls:

1. Remove roving from top of creel.
2. Take roving out of creel, but hold in box for re-creeling.
3. Doff frame.
4. Blow off frame thoroughly.
5. Place all cleaners, top and bottom, on top of creel.
6. "Head" man removes gear covers and prepares steel rolls for removal from stands.
7. Unhook weights and remove weight hooks, saddles, and stirrups; place in back sides.
8. Remove top rolls* and place in back sides; be careful to place them just as they come from the frame with the front roll to the left.

*Note: *In lifting out the steel rolls, use enough help to prevent the rolls from bending. We suggest 1 hand for every 6 ft. of roll length.*

9. Raise cap bars.
10. Put roll racks in place.
11. Place rolls in rack.

(a) For conventional or for four-roll long-draft systems, place rolls in rack as they are run in the stands, with the front roll in the first notch, etc.

(b) For long-draft systems using aprons or belts, place the back roll in the back notch, the front roll in the middle notch, and the middle roll with the aprons in the front notch, so as to facilitate the inspection and replacement of defective aprons.

12. Wipe oil and lint from rolls with soft waste.
13. Experienced cleaners will start working on rolls with stiff brushes or card clothing, rubbing lengthwise the rolls, cleaning the flutes thoroughly. (Some mills use powder, others cleaning fluid, but we find that the stiff brushes or card clothing, with plenty of "elbow grease" leave no bad after effects.)
14. Overhauler will inspect rolls and will undertake only minor repairs. He will not hold the frame for major repairs, unless absolutely necessary, but will make a note of defects which may be repaired when so many frames are not stopped at one time.
15. Lift out roving traverse and clean, also replace defective trumpets.
16. Clean roll stands thoroughly.
17. In the meantime, the head end will have been cleaned and worn gear studs replaced.
18. Clean ring rails, rocker arms, weights, tape tension pulleys, sampsons, cylinder bearings, traverse motion, and spindle bases. (One man recommends washing creel with warm water and a mild soap, but be careful not to get water on rolls, stands, or rings.)
19. Replace rolls in stands; take care to prevent bending.
20. Install hank clock, roving traverse, gears, etc.
21. Pull down cap bars, put rolls in place, and "saddle up."
22. Clean all clearers, except on frames using revolving front clearers. Lint on these clearers helps to clean front rolls which may have become slightly oily in handling and thus facilitates starting of frame.
23. Oil frame thoroughly. On saddles and roll tips use only a small amount of oil.
24. Re-creel roving and start it through trumpets.
25. Put on empty bobbins and piece up frame.
26. Overhauler inspects frame to be sure that it is functioning properly.

*Note: *All of the help will not be needed during all of the foregoing operations. It is customary to have part of the crew start working on the second frame and possibly even on the third before the first frame is actually in operation.*

SUNOTEX OILS . . .

Cut Costs by 10%, End Sticky Drop Wires, Snowballs, and Harsh Warp

A Rhode Island textile mill ran into weaving trouble. The drop wires were sticky and the warp was harsh with snowballs forming during the weaving. After the Sun Textile Engineer saw the condition, he replaced the textile processing oils used as softeners and preservatives with a Sunotex Oil.

Twenty-two months later the records showed a saving of 10% in processing costs with the Sunotex Oil. A better running warp was being obtained and the sticking of the drop wires was eliminated. There was also a notable absence of snowballs and marked improvement in weaving with no broken ends.

This combination of Sun Engineers and Sunotex Oils is helping many textile mills to make similar improvements and savings. Sunotex Oils have high wetting ability in respect to textile materials, and scour out uniformly and thoroughly — result, satisfactory dyeing. These quality processing oils are made by textile experts to meet the most exacting requirements of the industry. Sun oils and greases are also widely used for all makes of textile machines. We'll be glad to give you complete information or to have one of our engineers, familiar with textile problems, call at your request.

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is usually kept fairly busy. He should be instructed, however, that in order for the frames to continue to produce good yarn, all parts must be set as uniformly as possible; this applies especially to rolls and spindles. For example, a spindle not properly centered will not only give the spinner trouble by causing the end to come down frequently, but also will produce yarn that is stretched, and possibly light in weight and weak. Rolls not properly set may produce uneven, cockled yarn. Fixers should check all gears carefully when changing them and be sure that the correct twist and draft gears are used.

Roller cleaning or scrubbing is so essential to the continued production of good yarn that its importance cannot be over-emphasized. In the old days of one-shift operation, rolls were cleaned once a year; now rolls require this attention at least every six months. This work should be done under the supervision of the head overhauler, who should be a competent spinning-room man of long experience.

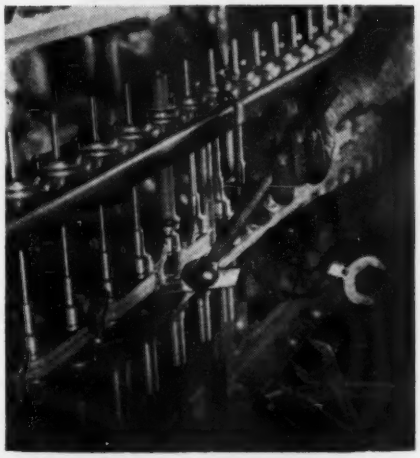
A detailed schedule of roller cleaning as practiced by one mill is given in Schedule I. It should be noted that this table shows the personnel required, the equipment used, and each operation from the time the frame is stopped until it is ready to run again.

General overhauling of spinning frames naturally requires more time and skill than regular roller cleaning, so it cannot be tied in with this latter operation. In our opinion, overhauling should be continuous with one-half of the frames being overhauled each year, thus covering all of the frames once in two years. The overhauler will, of course, have to take time out every six months to take charge of the roller cleaning, as has been explained.

A general overhauling schedule which has worked successfully is given in Schedule II. As in the case of the roller-cleaning schedule, the job is listed in detail along with a list of the equipment and personnel required.

Following the overhauling of a frame, there should be a careful inspection by the overseer or the second hand and a test by the laboratory for size, breaking strength, and twist; the size and shape of the yarn package should also be checked. This is no reflection on the ability of the overhauler, but is simply good business, and enables the overseer and the second hand to know the exact condition of each frame and just how it is functioning.

In connection with overhauling, plumbing spindles is essential to good running work. Although different methods may be used, we are suggesting this plan:



Aligning spindles at the top is more important than at the bottom.

PLUMBING SPINDLES. Run the ring rail to the top; place the centering plug on the spindle, loosen the base slightly, and with a small hammer gently tap the base until the plug is concentric with the ring. Do this on all spindles also with the ring rail at the bottom. Some spindles which are off center may be "packed" with paper shims, and all that are adjusted should be marked with crayon. Those which are still concentric will be passed. Then run the rail back to the top and check those spindles which were marked. Any which are not properly centered will again have to be tapped in place.

(*Continued on page 188*)

SCHEDULE II

I. Personnel required:

1 Overhauler.
1 Helper.
Use extra help as needed to lift steel rolls out of stands and back in again.

II. Equipment needed:

1 set of section man's tools.
1 set of lining-and-leveling instruments.
2 plugs for setting spindles, 1 for ring rail at bottom and 1 for ring rail at top.
1 guide set.
1 set roll racks.
1 pail for greasy waste.*
Wiping waste.
*See note in Schedule I.

III. Overhauling:

Before tearing frame down, inspect frame while still in operation. Make notes of items especially in need of attention; notice condition of steel rolls, cylinder, and builder motion.

1. Prepare frame as for cleaning steel rolls, and remove steel rolls. (See Schedule I for details.)
2. Inspect steel rolls and repair worn necks, etc.
3. Level frame crosswise by using cross level. (Implements for lining and leveling spinning frames may be made in the mill's repair shop; however, some mills use a patented system which does a very good job. Besides the cross level, this system includes a reel, on which is wound piano wire. When in use, this reel is fastened in the roll stand nearest the head end of the frame and the wire is payed out and fastened to a bracket placed in the stand nearest the foot end. The wire occupies the space represented by the center of the front roll, and provision is made for putting a predetermined amount of tension on the wire.)
4. Put lining apparatus in roll stands and adjust tension of wire.
5. Put gages along roll beam and by means of foot screws in sampsons; adjust frame to wire. (This is done, of course, on both sides of frame.)
6. Remove lining implements and replace steel rolls. (Although provision is made for adjusting each roll stand to the wire, we suggest loosening the stands—except the end stands—before the rolls are put back in, and gradually tightening the stands as the rolls are turned by hand, so that the rolls will turn freely.)
7. "Saddle-up" frame.
8. Level ring rails.
9. Plumb spindles.
10. Set guides.
11. Check builder motion for worn cams, chains, etc., and replace as indicated by the inspection.
12. Inspect all gears and replace all worn gears and studs.
13. Examine cylinder and cylinder bearings and repair as needed. (If the frame has individual drive, this will be a good time to have electrical department check motor, chain or belt drive, switches, and wiring.)
14. Set in roving and prepare frame for starting.
15. Check build of bobbins during the running of the first doff.
16. Have laboratory check twist, size (yarn number), and breaking strength.
17. Run ends-down test during the next few days to spot spindles or guides not set properly and to check on the operation of the frame.

Naturally, rings should be inspected; but it is not advisable to change odd rings unless absolutely necessary; the whole frame should be changed at one time when it is evident that the rings are too badly worn to be operated profitably.

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Oronite* Naphthenic Acids are available in many grades for use in the manufacture of detergents, greases, water soluble oils and wood preservatives, and as flotation agents.

Oronite Wetting Agent is a semi-fluid material free of oil. It is valuable in both acid and alkaline solutions.

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"WHISTLE WHILE YOU WORK—" at Excelsior Tire-Cord Plant

HIGHLIGHTS: Broadcasting system provides recreational features by playing records. Personnel easily located. Announcements broadcast promptly.

SAVING OF THE TIME which was formerly lost in attempting to locate executive personnel when in the mill, broadcasting of important announcements, and the benefits obtained from providing employees with music while they work, are a number of the more obvious returns from the plant broadcasting system installed at the new Excelsior Plant No. 2, of Deering, Milliken & Co., Clemson, S. C.

INSTALLATION. This plant broadcast system was installed by RCA Victor Division, Radio Corp. of America. The unit was designed and engineered especially to fit the requirements of this new rayon tire-cord plant, which is of one-story construction and covers 2½ acres. (See page 112 of September, 1944, TEXTILE WORLD for the story of the plant.) Primarily it was a paging and general-announcement system, but it is installed in such a manner as to permit it to be used for other purposes.

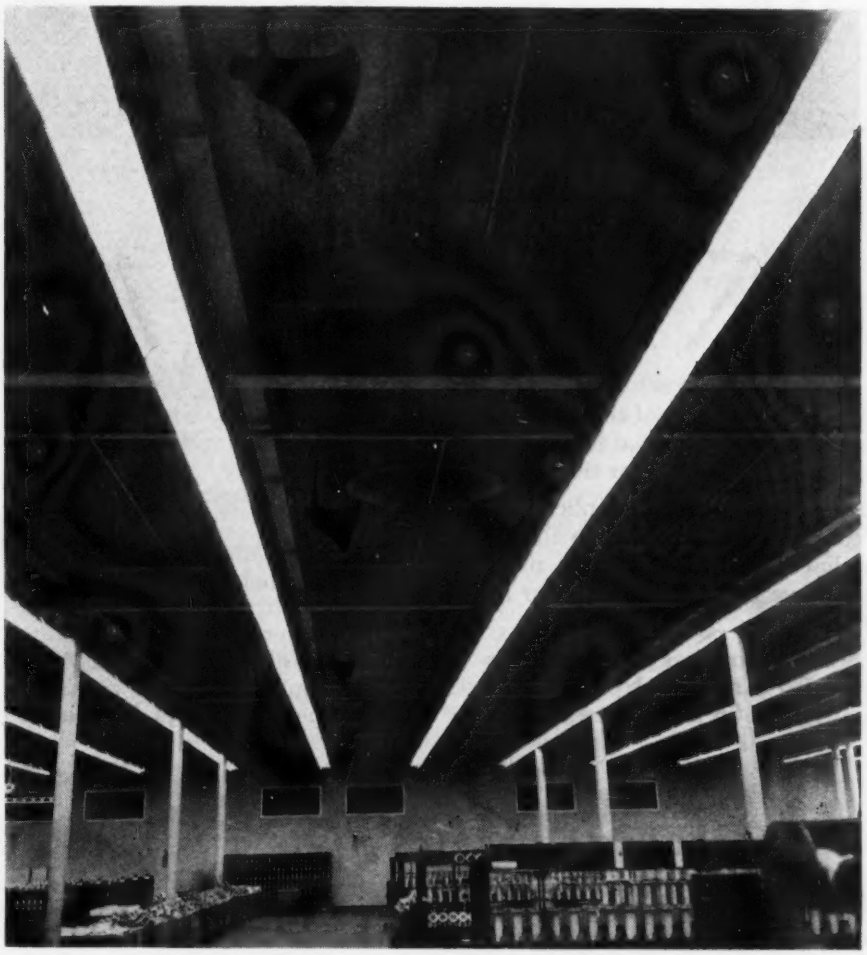
From the receptionist's desk, or from the general superintendent's desk, a message can be transmitted instantly to every department in the mill through the 90 loud-speakers located throughout the plant. Those speakers in the weaving section and in other high-noise areas have sufficient power to override the tremendous volume of noise emanating from the machines.

SYSTEM USED FOR RECORDS. In addition to the paging and announcing microphone, there is a heavy-duty, two-speed turntable for reproducing standard recorded music and special transcriptions.

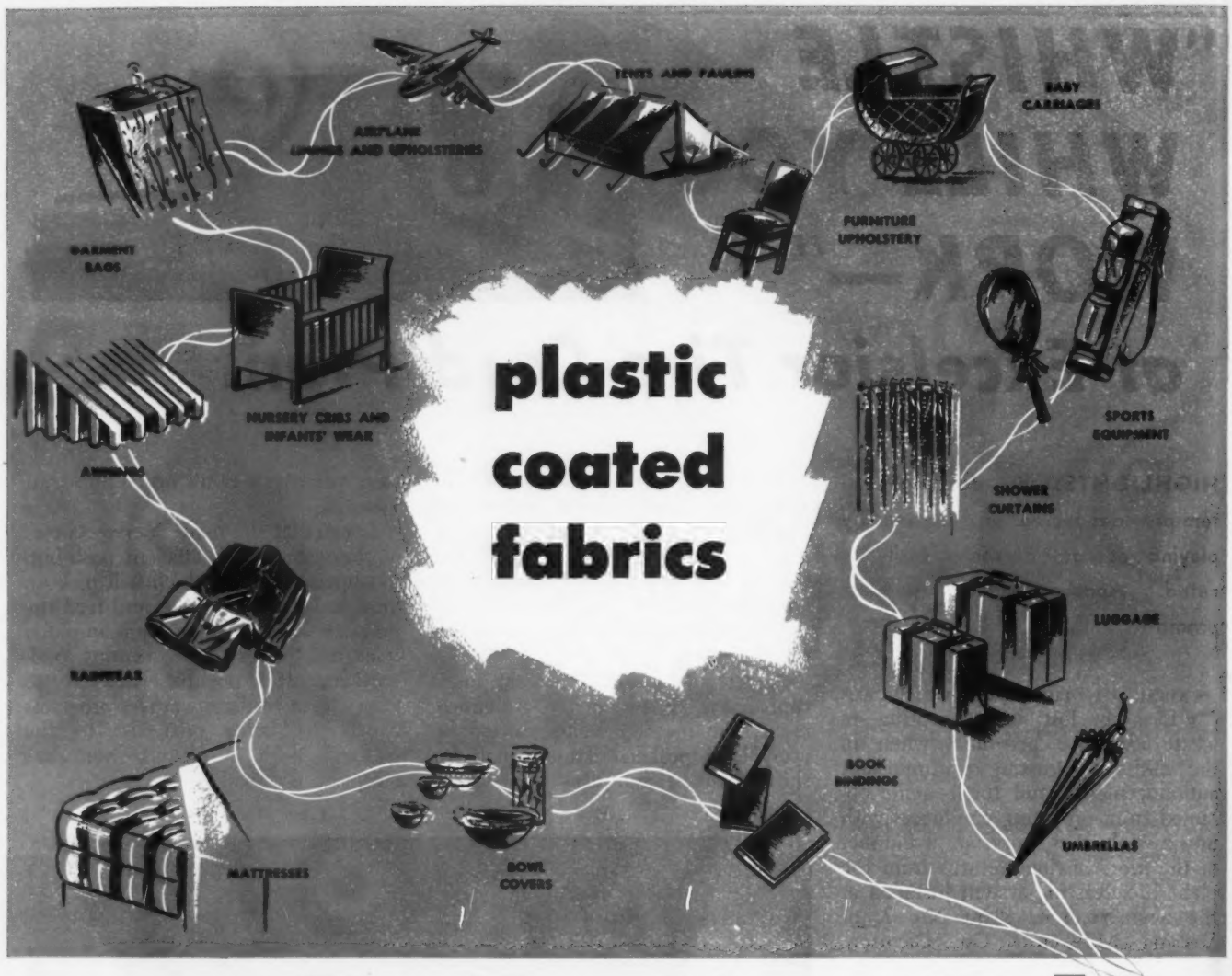
Experience has proved that the swing-type music with plenty of rhythm, but with not too wide a frequency range, is the favorite of the average employee. Loud-speakers are so connected that it is possible to play only through selected outlets, cutting out the others.

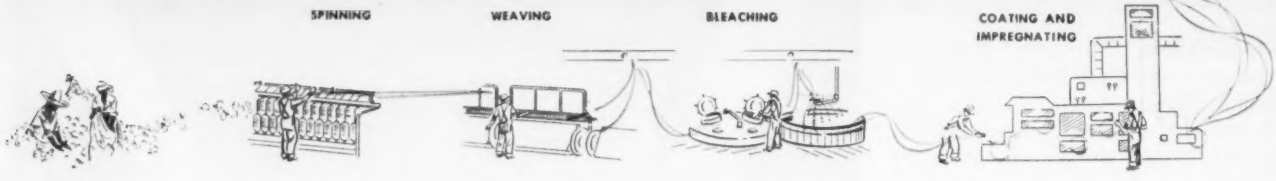
Any regular program may be interrupted for an emergency announcement, the message being carried by every loud-speaker. Time signals for shift changes, and also fire signals, carry priority over all other broadcast material.

Located at the main "nerve center" of the system is an efficient push-button operated radio which will pick up local and distant stations and feed the program directly to the main amplifier track and hence to the various loud-speakers. It is possible, therefore, to bring direct to the operatives programs which are being broadcast to the nation. Both long- and short-wave reception is provided.



A bank of loud-speakers is mounted on the ceiling over the twister frames in this room. (At top of page) Receptionist in main office is broadcasting from nerve center of system.





These are but a few of the items for which our plastic coated fabrics and papers will be used after the war.

There are many other applications, of course, some of which are already familiar to our research staff—many more have not yet come to our attention.

Check *your* post war plans. Do plastic coated fabrics and papers show up anywhere in the picture?

An early contact with a reliable source of supply will give you the advantage of an early start with many of the experimental hurdles behind you.

We have the plant facilities and the experience to help you build a "quality line" right from the start. Our craftsmen were among the first to master the new and difficult technique of applying the new vinyl resins to fabrics and papers. We are one of the largest suppliers of these fabrics to our armed forces.

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JOANNA TEXTILE MILLS, GOLDVILLE, SOUTH CAROLINA

CONSTANT-LOAD Tests Achieved Electronically

HIGHLIGHTS: Pendulum-type testing machine uses electronic control which allows constant-rate-of-load tests to be run to weight capacity of the machine. Highly elastic fabrics and low-elongation fabrics may be tested.

By R. J. DEMARTINI
Textile Appliance Engineer,
General Electric Co.

BASIC SOUNDNESS of constant rate of loading of strenth-testing equipment in tensile testing has been recognized since the early 20's, when the Henry L. Scott Co., in cooperation with the M.I.T. and the Bureau of Standards textile laboratories, developed the first inclined-plane testing machine.

Now, in almost all laboratories testing single-end yarns and light-weight fabrics, inclined-plane machines are standard equipment. However, use of this instrument is perforce limited to work at lower tensile levels (50 lb. maximum on standard machines) because of the magnitude of the rolling weights required in the higher weight range. Until now technical textile men have continued to work with and to base specifications on the old, well-known, pendulum-type machine. To meet an apparent need, a new electronic control has been designed and successfully applied as an attachment to the standard pendulum-type tester as shown in Fig. 1, to permit constant-rate-of-load tests to be run.

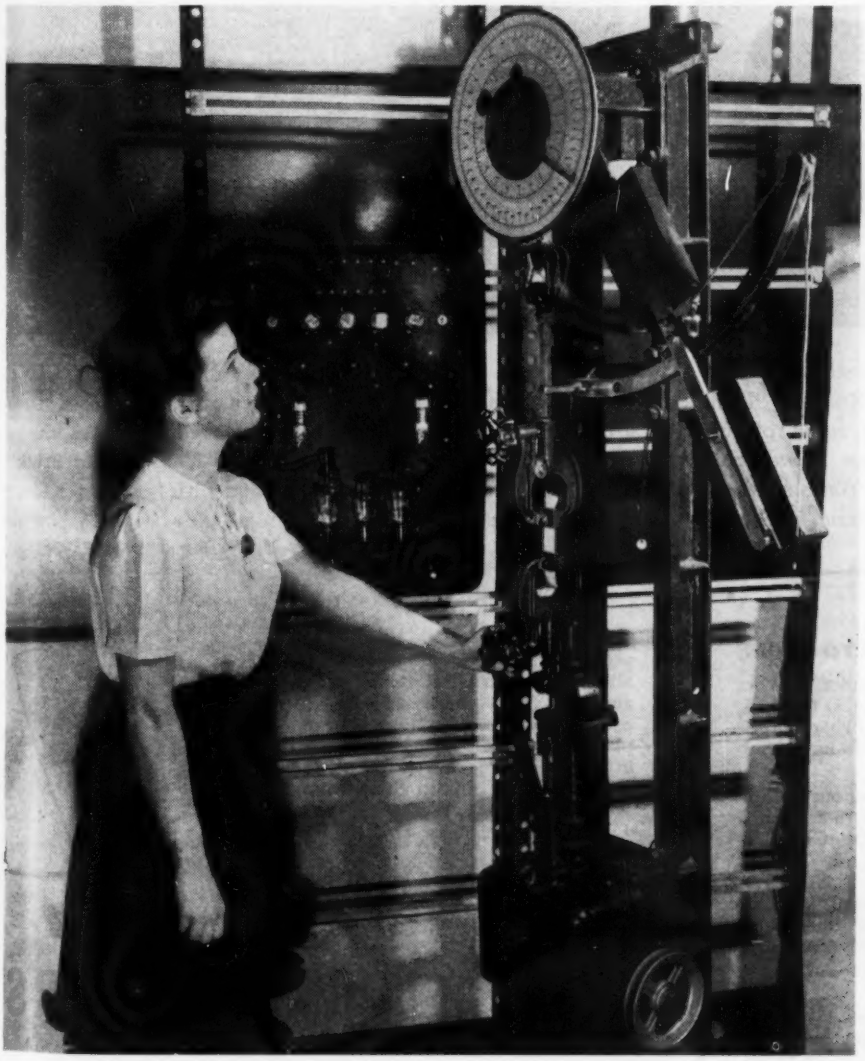


Fig. 1. The pendulum-type tester shown in operation is equipped with a G-E constant-rate-of-load electronic control. Cover to the control panel in the background has been removed, revealing the motor speed-control tubes.

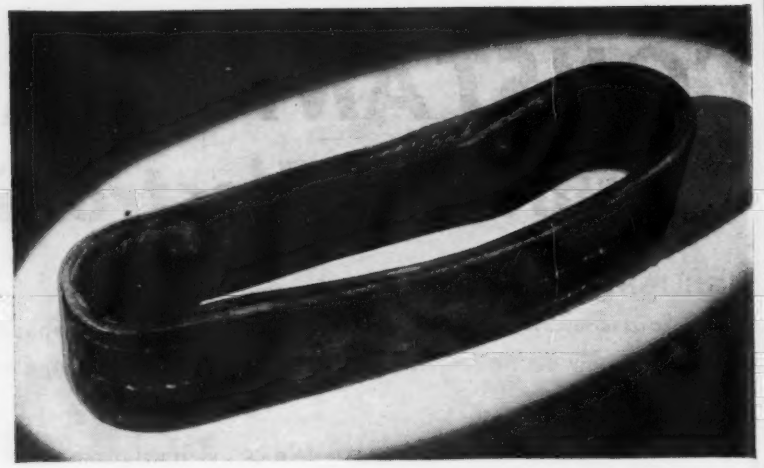
MECHANICS OF PENDULUM-TYPE MACHINES. Although the single-speed driving motor on the regular tester causes the lower jaw to move downward at a constant rate, the pendulum arm "bumps" its way through the loading cycle. Also, fabrics of differing stretch characteristics cause the pendulum to move at correspondingly differing average rates.

At every instant during a test, the counter-clockwise torque exerted on the torque-balance shaft should be exactly counterbalanced by the restraining torque imposed by the weighter pendulum-arm. As many of the factors involved in determining the load, or the pull through the sample, are fixed quantities, it is concluded that the load (P) varies as the sine ($\sin \phi$) of the angle made by the pendulum arm from the machine center line.

HOW THE ELECTRONIC CONTROL OPERATES. The linear relation between the load (P) and the sine of angle formed between the pendulum and the machine center-line is the key to the design of a constant-rate-of-load control. If means can be provided for continuous automatic measurement of $\sin \phi$, and if then the variations of this measured value from a linear rate of increase are made to serve as the bases for motor-speed adjustments, the constant-rate-of-load control will have been contrived. This is precisely the approach employed in the design of the fully automatic electronic control.

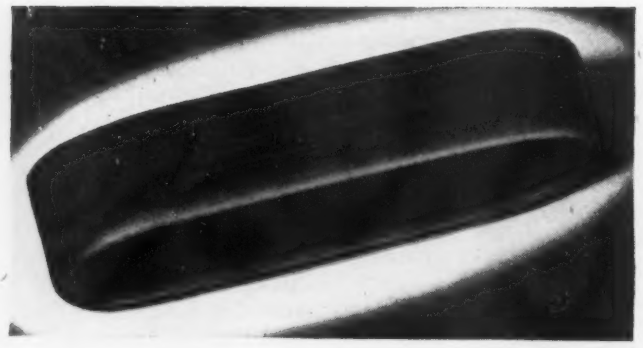
In the induction voltage regulator lies the means for continuous measurement of $\sin \phi$. This device, which externally has the appearance of a fractional horsepower motor, consists electrically of two wound field poles and a wound rotor. The two-pole windings are energized from a 110-volt a.c. line,

42 Months ON The Loom

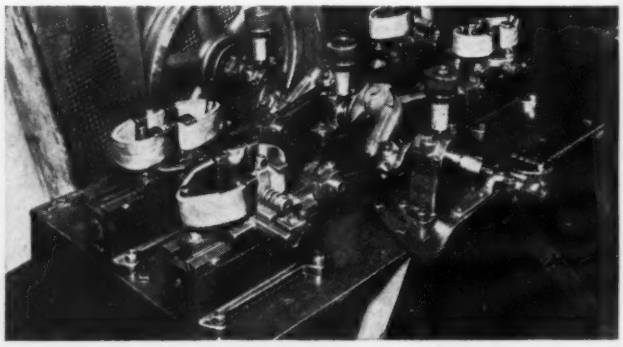


This Graton & Knight "Two-Fold" Check Strap of "Hairitan" leather operated in a mill three shifts a day for 14 months—the equivalent of better than 42 months' normal service, considering it had no periods of "relaxation" between shifts.

TYPICAL ORANGE LINE PERFORMANCE



Records like this demonstrate the high tensile strength (averaging 6000 lbs.) and resiliency of Graton & Knight's "Hairitan" leather — acknowledged at least the equal of any "European-type" hair-on leather. The unique "Two-Fold" construction permits the strap to adapt its contour to the angle of the picker stick at the point of maximum impact.



Torture tests assure top performance for **ORANGE LINE** loom products. Here check straps taken at random from stock are tested by a special machine which concentrates many months of service into a short period. The "picker stick" strikes the strap four times as often and with far greater force than the fastest loom.

THE ORANGE LINE

ONE QUALITY CONTROL FROM HIDE TO LOOM

"Hairitan" products, identified by orange color on the flesh side, are manufactured, from green hide to finished product, under one roof, under a single control of quality, by *the world's* largest manufacturer of industrial leather goods.

PICKMASTER PICKERS with the famous "Life Saver" Hole . . . BLOCK PICKERS extra-resilient, cemented under pressure . . . "TWO-FOLD" CHECK STRAPS straight or endless . . . JACK & FLAT HARNESS STRAPS for heavy-duty work . . . ROUND HARNESS & DOBBY STRAPS center-stock "Hairitan" . . . LUG STRAPS 4 or 5 ply, folded, stitched; 2 or 3 ply, cemented . . . LUG HOLD-UP STRAPS . . . BUMPER OR SPINDLE STRAPS 1 or 2 ply.

Graton & Knight also manufacture oak-tanned pickers, lug straps, bunters, box plate and binder leathers . . . "Research" rub roll aprons . . . G&K condenser tapes . . . G&K comber and gill box aprons . . . "Research" leather belting.

Give your loom fixers a chance to improve their records. Send for a valuable catalog on G&K textile leathers and let them check each product, each advantage. Also have your name placed on a list to receive our informative literature on textile leathers. Address 326 Franklin St., Graton & Knight Company, Worcester 4, Mass.

GRATON AND KNIGHT

ORANGE LINE LOOM LEATHERS

Supplied by the leading distributors to the textile industry . . . look under Graton & Knight in "Belting" section of Classified Telephone Directory or THOMAS' REGISTER. See complete catalog in TEXTILE WORLD YEAR BOOK.

and by transformer action they induce a voltage in the rotor winding. When the rotor is positioned so that its coil axis is parallel to the flux path between the two stator poles, the induced voltage is a maximum; when the rotor is in a position 90° from this setting, the voltage is a minimum. Plotted values of voltage versus rotor position, when plotted over the intermediate range (0° to 90°), lie on a sine curve. If the shaft of this regulator is connected directly to the torque-balance shaft of the pendulum machine, moving the pendulum through its arc will cause an increasing voltage signal to be generated, increasing in direct proportion to the sine of successive values of ϕ.

This alternating current signal, "piped" out via leads connected to the rotor, is next converted to d.c. as it passes through a rectifier tube, indicated in Fig. 2. It then proceeds through a capacitor and a resistor. These elements are located on the control panel, Fig. 2. This current passing through the resistor establishes a voltage drop directly proportional to it across that resistance in accordance with Ohm's law. The voltage impressed on the grid of the speed-control tube, and its magnitude, dictates the speed at which the motor operates.

Consider how these relations bear on the operation of the control. The driving motor always attempts to run at constant speed and will do so as long an $\sin \phi$ increases at a uniform rate. This is analogous to saying that motor speed remains constant so long as the rate of load is constant, since the load varies as $\sin \phi$. Should the test specimen have a high-stretch characteristic, movement of the lower jaw will tend to be largely absorbed in the stretching, and the pendulum will tend to move at a rate slower than required. But when this lag develops, current passed by the capacitor decreases, as does the current and the voltage impressed on the grid of the speed-control tube. The motor is thereby immediately called upon to increase speed. As a result, the lower jaw is driven downward at a more rapid pace and the rate of travel of the pendulum is caused to increase to that required to maintain a constant rate of loading.

Conversely, if the specimen has a low-stretch characteristic—as is the case when a high-count fabric is tested at short gage-length—the pendulum attempts to move along too rapidly, and the control operates to decrease motor speed.

The corrective action is completed within a few cycles—a small fraction of a second. The control, in effect, measures the rate at which load is being applied in each successive instant, and when it "observes" the slightest tendency toward variation from constant rate of load, it leaps into action, adjusting motor speed to correct the error. Since it is on guard continuously, it never permits that error to assume a significant magnitude.

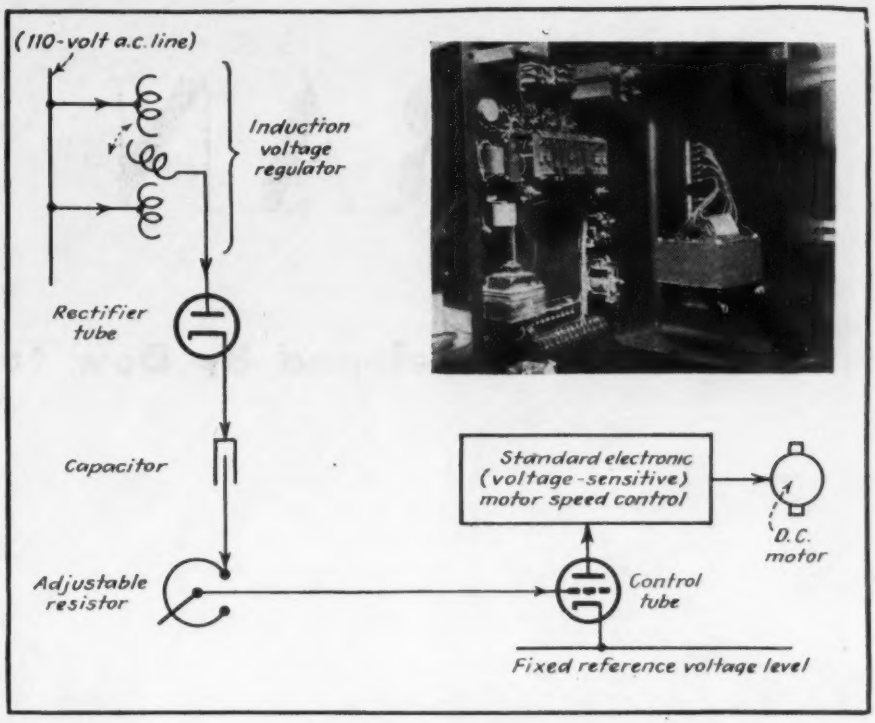


Fig. 2. The one-line diagram illustrates the scheme of operation of electronic constant-rate-of-load control, while the interior of the control panel (see insert) reveals the "workings" of the control.

The electronic control is capable of handling fabrics covering a wide range of stretch characteristics. This is illustrated in the two curves shown in Figs. 3 and 4. These curves were drawn by an electric recorder into which was fed the voltage signal drawn from the in-

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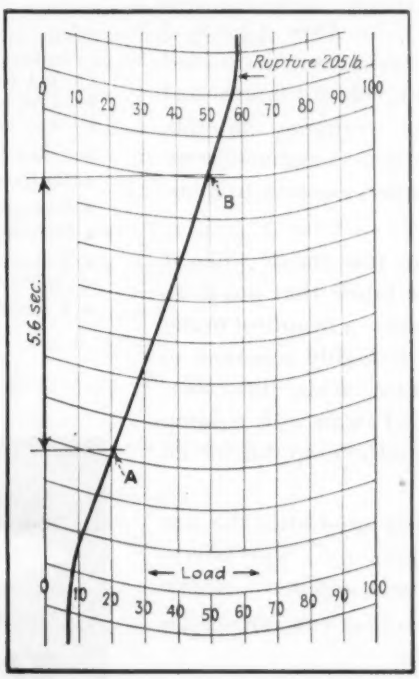


Fig. 3. Load vs. time—1-inch yarn serigraph specimen, 103 ends of 12/2 cotton braiding yarn.

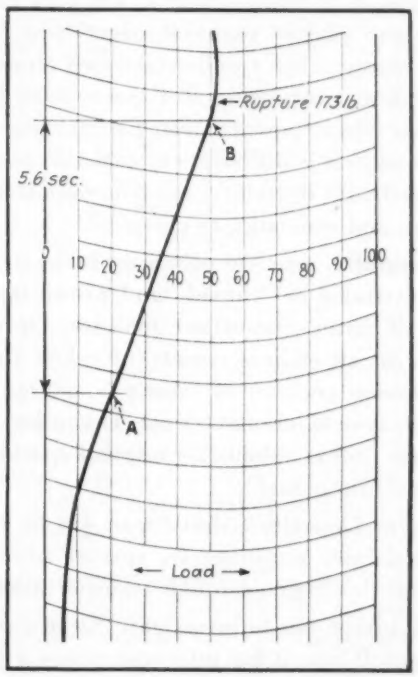
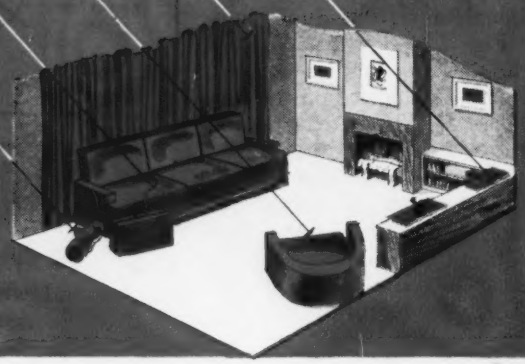


Fig. 4. Load vs. time—9-inch yarn serigraph specimen, 103 ends of 12/2 cotton braiding yarn.

SARAN

developed by Dow to work for you



It's the new, colorful, non-fading fabric you can clean with a damp cloth!

Saran is a relatively new word in the textile field. But this unique plastic material—developed by The Dow Chemical Company—has a well-established reputation in many diversified applications ranging all the way from light, colorful fabrics and solid black pipe to transparent, film-like wrapping material. Its success is due to its remarkable properties—toughness combined with flexibility, nonflammability, imperviousness to moisture and resistance to chemicals.

Naturally, you are primarily interested in this plastic when it is extruded as "thread" and woven into a fabric that possesses all of Saran's important qualities. The result—a beautiful material in an endless variety of colors that is highly resistant to common enemies of fabrics . . . fire, grease, acids, dirt, soot, sun, insects, abrasive wear. It can be wiped clean with a damp cloth and it retains its original sparkle and eye appeal for an indefinite period.

We at Dow think that Saran will be widely used after the war for fabrics requiring its special advantages . . . upholstery, draperies, luggage, public transportation seats, and many others.

We invite you to investigate Saran now so that you can see for yourself how it fits into your postwar plans.

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AVAILABLE THROUGH LICENSEES

Saran molding compounds, produced by Dow, are extruded as monofilaments or thread by skilled licensees located throughout the country. All of them are in a position to give you details about Saran and its possibilities. These licensees include:

★ Allied Plastics Co., Los Angeles, California
★ Hodgman Rubber Company, Framingham, Mass.
★ Irvington Varnish & Insulator Co., Irvington, N. J.
★ National Plastics Products Co., Odenton, Md.
★ Visking Corporation, Chicago, Illinois (merchandised under the name Permalon)
★ Western Felt Works, Chicago, Illinois

DOW PLASTICS

OPENING and CARDING
Must Be Better Than Ever

HIGHLIGHTS: Mixing most important part of opening-room operation. Hopper feeders should be kept three-quarters full. Fan and beater speeds must be regulated jointly for best cleaning. Rejected laps should be kept under 1%. Higher break drafts on roving frames reduce clearer waste.

By FRANK SEARS

ALL SUGGESTIONS in this article are given in the spirit of helpfulness; no attempt is made to set up arbitrary standards. In fact, there are so many different machines and machine combinations in use and so many different requirements as to yarn quality that no general set of statements can be applied without modification. This brief review, covering one man's experience in his own department, should prove stimulating to experienced supervisors and give the new or prospective supervisor a good start in acquiring a good working knowledge of the card-room processes.

OPENING. With the trend to higher speeds and longer drafts and the elimination of most doublings, and with the same standard for quality being adhered to, a more thorough understanding of cotton and its opening is required of carding supervisors. The importance of the opening room must be realized if we are to manufacture superior yarns.

Mixing is the most important part of the opening-room operation. It does not simply mean the mixing up of various classifications or varieties of cotton. Mixing is just as necessary if only one growth of cotton is used, because irregularities of growth and staple exist in every bale of cotton. Staple, color, fiber strength, and character of the cotton have to be considered if good spinning qualities are to be obtained.

The feeding of the cotton to the opening machinery has to be done evenly and this depends entirely on the operator. Many mills have hopper feeders and vertical openers in their opening lines. Hopper feeders not kept three-quarters full often affect the amount of cotton delivered to the pickers. The opening-room operator has a tendency to throw large layers of cotton from the opened bale into these hoppers; and so, even if a perfect mix has been laid on the floor, it is still possible to get a poor blend. A more modern feeder, like the SL F-7, eliminates to a certain extent this uneven feeding by the operator. Only a certain amount of cotton can be fed at one time; therefore, practically all the responsibility of an even feed is taken off the operator.

FAN AND BEATER SPEEDS. It is best to avoid high beater and fan speeds. At times it is possible to get the same amount of cleaning with less machinery just by cutting down fan speeds.

On any machine equipped with beaters and fans, beats per inch are not the sole factor in cleaning cotton. Air, if applied properly, will give the grids a chance to take out impurities; otherwise, if fan speed is too high, these impurities are drawn along with the raw stock. The same thing applies to pickers.

For example, it is possible to get more cleaning with the same amount of beats per inch or pound, just by reducing or increasing fan speed, whichever seems necessary. Too high a fan speed draws the stock from the beater before it has been thoroughly cleaned, and occasionally droppings from the grid bars are sucked into the beater chamber again. Too low a fan speed will choke up your machine, and so this is more easily discovered. Overhauling of opening-room machines should be done systematically. These machines are all high-production machines and should be kept in good condition because a breakdown here may result in a complete shutdown of the mill.

Each machine should be set to deliver whatever amount of waste is deemed advisable. Waste tests should be made at certain intervals and the machines reset, if found necessary.

OPENER SETTINGS. Settings that have been tried and found satisfactory on opening machinery are the following:

Feeders. The combing roll should be set as close as possible to the pins on the lifting apron. If more produc-

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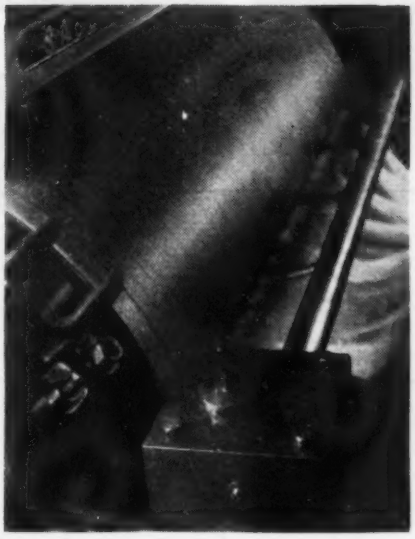


Good carding is impossible without good grinding of clothing.

Table I.
Lap Defects and a Check List of Causes

Cotton not well opened. Check for:

- Dull beaters.
- Beater too far from feed roll.
- Pedals not gripping cotton.

Cotton fiber damaged. Check for:

- Grid bars too close to beater.
- Feed too heavy.
- Beater speed too high.
- Beater too close to feed roll.

Dirty laps. Check for:

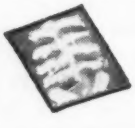
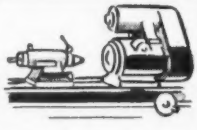
- Grids bars too close.
- Fan speed too high—beater r.p.m. too low.
- Feed too heavy.
- Back draft.
- Grate-bar door not fitting correctly.

Conical laps. Check for:

- Too much draft on one side.
- Rack uneven.
- Dirty cages.
- Clogged grid bars.
- High fan speed. (This means more cotton on edges than on middle.)

WHAT DO THEY HAVE IN COMMON?

ANSWER BELOW

AIRCRAFT	MEDICINES	COMMUNICATIONS	TANKS	MOTORS	FOODS
GAUGES	CAMERAS	TIRES	MILK	SHIPS	OPTICALS
AUTOMOBILES	MUNITIONS	METALS	RECORDS	CHEMICALS	TEXTILES
MAPS	OIL	RADIO	 X-RAY FILM	 MACHINE TOOLS	COPPER
PAINT	PLASMA	PLASTICS	GEARS	WATCHES	PARACHUTES

ANSWER: *All* these products are being made faster, better, at lower cost, or are giving better service—through use of *air conditioning or refrigeration.* Yes, all these and thousands more! Wherever you can use air conditioning or refrigeration for faster, better, lower cost production, see G-E!

AIR CONDITIONING AND INDUSTRIAL REFRIGERATION BY

BUY and hold WAR BONDS

GENERAL ELECTRIC

General Electric Co., Air Conditioning and Industrial Refrigeration Divisions, Section 453, Bloomfield, N. J.

Tune in: The "G-E HOUSE PARTY" every afternoon Monday through Friday, 4 p. m., E W T, C B S . . . The "G-E ALL-GIRL ORCHESTRA," Sundays, 10 P. M., E W T, N B C . . . "THE WORLD TODAY" News, Monday through Friday, 6:45 P. M., E W T, C B S

DE-IONIZED WATER
Reduces Variables: Cuts Costs

HIGHLIGHTS: Zeolite - softened water has alkalinity that varies with original hardness. New machine eliminates both alkaline and acid salts, producing equivalent of single-distilled water at fraction of cost. Process applicable to many textile processes, increasing uniformity of product.

By S. F. ALLING
Vice President, Hungerford & Terry, Inc., Clayton, N. J.

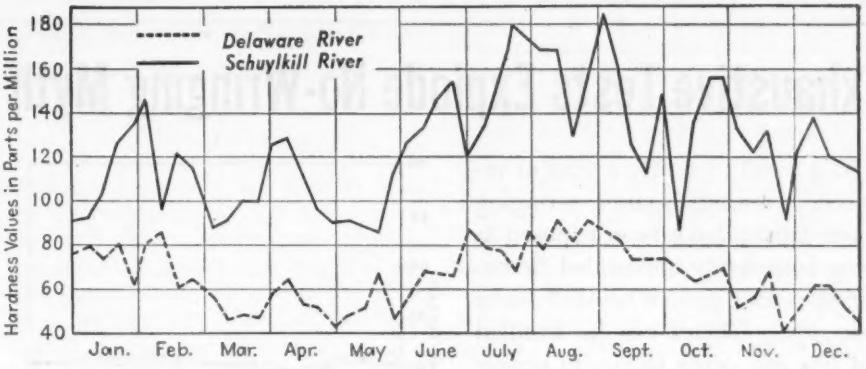


Fig. 1. Fluctuation in hardness of river-water supply at Philadelphia which is typical of what is experienced in many textile centers.

TWENTY-FIVE YEARS AGO textile mills were just beginning to appreciate the advantages of zeolite water-softening by base exchange, and by the start of World War II practically every textile mill doing work requiring lime- and magnesium-free water for a highest-quality, lowest-cost product used conventional zeolite softening equipment. Today the more progressive textile mills are thinking in terms of still better water for greater uniformity, better appearance, and even lower cost of their products. This water should be free not only of calcium and magnesium but also of sodium, potassium, iron, manganese, etc., and all of their acid components; in other words, de-ionized water.

The textile business has for too long involved many processing operations of a cut-and-try nature, conducted by adding a bit of this or a drop of that, or taking out a little of this or less of that. Why is it that this industry does not standardize and use exactly weighed amounts of chemicals and supplies with assurance of the same uniform results? The answer, obviously, is that there are one or more variables to contend with.

What are these variables—the cloth and the yarn? To some extent yes, but, ordinarily, variances in these are small and adequately allowed for in the processing formulas. Are the variables found in the oils, soaps, chemicals, dyes, and other supplies? No, the manufacture of these is rigidly controlled, and their uniformity is guaranteed in practically every instance. In labor—the human element? Perhaps to some extent, but the class of labor, especially for supervision of delicate processing operations, is of such a high type that one must in the main look for some other variable.

In over 95% of textile mills the actual chemical analysis of the processing water varies daily, and often over a period of weeks ranges between wide limits. It is true that where adequate water-filtration plants are installed the turbidity, color, iron, manganese, and organic matter are uniformly low and for all practical purposes zero; and likewise, where there is a zeolite water-softening plant, the calcium and magnesium content in the water is zero by any of the several soap hardness tests, or by gravimetric chemical analysis less than the almost infinitesimal amount of 4 parts per million. But what about the dissolved solids such as bicarbonates, sulphates, chlorides, and nitrates of sodium, potassium, calicum, and magnesium, which are not removed by a water-filtration plant, and what about the various sodium and other salts which are not removed by the zeolite softening plant and which vary in

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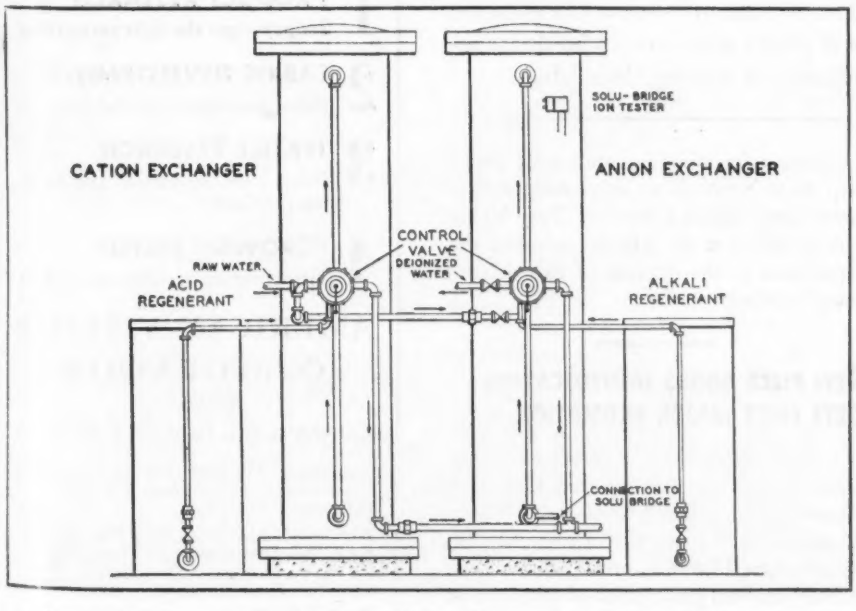


Fig. 2. Diagram of ion-exchange machine, showing valves and regenerating units.

RAYON REPORTS

Published Monthly by American Viscose Corporation, New York, N. Y. MARCH, 1945

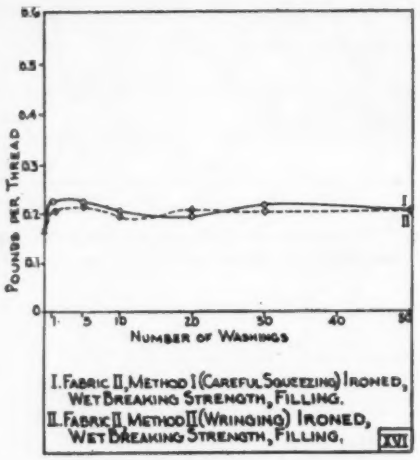
Exhaustive Tests Explode No-Wringing Myth

As a result of nearly a year of research, warnings against wringing rayon fabrics have been exposed as being completely unfounded. Scientific tests have proven beyond doubt that rayon fabrics can be handled just like any other fabrics in similar use.

Five common types of fabrics were used for these tests. They were selected to represent typical market constructions of the kind that would ordinarily be expected to give most trouble in wringing.

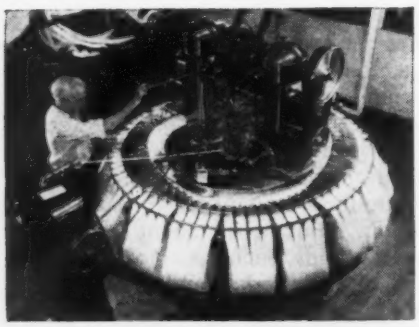
Samples were laundered by two methods . . . both identical as far as actual washing was concerned. But in Method 1 the fabric was gently squeezed, then rolled in a towel to remove moisture. In Method 2, the water was removed by hand-wringing.

Each fabric underwent a series of 50 washings. After each 10 washings, the breaking strength (both wet and dry) was carefully measured. The breaking strength was practically the same, whether the fabric had been gently squeezed or had been wrung out.



This chart represents a typical result obtained with each of the different fabrics. Note how the strength curves criss-cross each other, showing no significant difference in the results obtained by either method.

In the light of these facts, manufacturers will want to review their rayon fabric labels and eliminate any unnecessary laundering precautions. The American Viscose Corporation will gladly advise any who desire assistance in revising their labels.



RESEARCH DEPARTMENT HAS COMPLETE FACILITIES FOR TEXTILE STUDIES

The Textile Research Department of the American Viscose Corporation, at Marcus Hook, Pa., contains full-size commercial equipment for studying practically every step in the process of converting textile fibers into finished fabrics. The Noble comb, shown at the left, is typical of the equipment at the disposal of this department's research staff.

NEW PIECE GOODS IDENTIFICATION GETS FIRST MAJOR PROMOTION

With the statement, "Every inch—every yard—carrying the coveted CROWN* Tested strip labeling," Abraham & Straus, Brooklyn, N. Y., recently introduced continuous tape-labeled Benrose Fabrics. Customers showed great point-of-sale interest and expressed satisfaction at being able to take home complete information and instructions concerning the fabric.

The new identification is accomplished by inserting a tape at the point of winding. The tape, a narrow strip of paper, runs continuously through the bolt. It carries information and instructions according to the CROWN Tested three-tag system, and may also include the fabric name.

RESEARCH ADVERTISEMENTS REPRINTED

The American Viscose Corporation is making available in booklet form reprints of a series of the company's institutional advertisements, telling how research is developing new uses for Rayon and Vinyon. Copies may be obtained, without charge, by writing the American Viscose Corporation, New York.

★ ★ ★

The American Viscose Corporation acknowledges with thanks the many helpful comments received as a result of a sampling of opinion on the interest of this page to members of the trade. A summary of the opinions will be sent to anyone interested in the outcome of the poll.

MAKE USE OF 4-PLY SERVICE

1 PRODUCT RESEARCH
Helps you get the right yarn or fiber.

2 FABRIC DEVELOPMENT
Helps you design new fabrics.

3 TEXTILE RESEARCH
Helps solve production and finishing problems.

4 "CROWN" TESTED
Helps provide scientific selling facts.

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Sales Offices: 350 Fifth Avenue, N. Y. C. 1; Providence, R. I.; Charlotte, N. C.; Philadelphia, Pa.

Plants at: Marcus Hook, Pa.; Roanoke, Va.; Lewistown, Pa.; Nitro, W. Va.; Parkersburg, W. Va.; Meadville, Pa.; Front Royal, Va.

CROWN TESTED RAYON FABRICS

Reg. U. S. Pat. Off.

Watch Loom Settings When WEAVING SPUN RAYON

HIGHLIGHTS: High efficiency in production requires uniform atmospheric conditions. Maximum relative humidity of 70% and minimum temperature of 80°F. suggested for weaving. Loom settings must be watched to eliminate set marks.

RAYON-STAPLE FABRICS are being woven on a variety of cotton-type looms. Some of the latest looms considered suitable for spun-rayon fabrics are given in Table I. These include single and multiple-shuttle looms equipped with dobby or head motions, or spring top and cams. The variety of fabrics made of spun rayon or yarns blended of rayon staple and other fibers run from coarse, woolen-type fabrics to fine-spun sheers; consequently no attempt will be made here to specify weaving conditions in more than a general way. A large yardage of fabrics is made in the quality range normally manufactured in mills accustomed to running cotton; and there seems now to be a trend to specification of wider fabrics by the cutter.

WEAVING EFFICIENCY. Production efficiency in the spun-rayon weave-room depends on a number of factors such as the quality of the yarns, the preparation of warp and filling, the adjustment and setting of the looms, and the skill and efficiency of the operatives. These factors are affected by atmospheric conditions in the weave room.

Beams, shuttles, harnesses, picker sticks, picker straps, box binders, etc., are hygroscopic, and therefore, shrink or swell with changing atmospheric conditions. Only by having uniform atmospheric conditions can the close loom-adjustment, essential to high-speed weaving, be attained.

Atmospheric conditions also affect the tension on both warp and filling. Improper tension on the warp or filling causes end-breakage and loom-stoppage, which, in turn, result in bad work and loss of production.

With uniform humidity adjusted to the needs of spun-rayon weaving, looms can operate at maximum speed. Also with proper humidity, less size can be used, which results in a saving of both material and labor.

HUMIDITY. Since controlled atmospheric conditions are so important, any mill going on rayon staple should be sure that its humidifying or air-conditioning equipment is adequate. In the weave room, uniformity of atmospheric conditions from area to area, from hour to hour, from day to day is of first importance.

It has been the experience of some mills that 100% viscose spun-rayon fabrics perform better in a weave room where humidity is considerably lower than is normal for cotton. A figure of 65 to 70% r.h. has been found to be adequate for straight viscose; at humidities much over 70% trouble has been experienced, although with heavier sizing the higher humidity can be used. (Other manufacturers suggest lower or higher relative humidities, so there seems to be no real agreement and each mill must determine what is best for its own requirements.) For blends of viscose rayon staple with wool or with acetate, the humidity may be slightly higher. A minimum temperature of 80° F. combined with a moderate humidity insures against static. The main point is that the humidity in the weave room should definitely be kept considerably lower than is normal with cotton; and if the weaving is done in the same room with cotton, the looms should be segregated.

SLASHING. Gum-based sizes have come into general use for slashing straight viscose or blends of viscose and acetate up to a 75-25 blend. If over a 25% acetate blend is used, gelatin must be added to the formula, as gum does not adhere to the acetate fiber (TEXTILE WORLD, February, 1944). In addition to the gum, a high-melting-point wax is used to reduce shedding; and, in some cases, a softener of about 4% fat on the weight of the gum is introduced.

While a low degree of stretch (around 2%) seems to be preferred, one weaver has found that if he runs his warps with a stretch as high as 7% he has less trouble from set marks.* This seems to be due to the fact that there is less residual stretch left in the warp; and therefore, when the loom is standing there is less elongation of the warp yarn. Too much stretch, however, can cause excessive end-breakage.

On blends with a high percentage of acetate, static can be avoided by running the beams a little on the damp side. Beams should never be stacked on end as the yarn comes away from the head.

LOOMS. Draper looms used for spun rayon (see Table I) should be

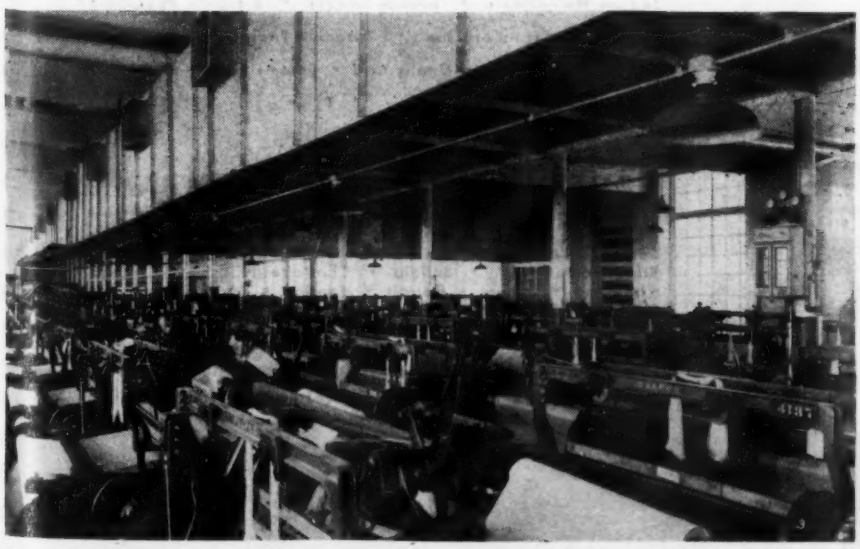

Fig. 1. Modern air-conditioned weave rooms are being used by weavers of spun-rayon fabric.

* A weaver comments that this must be accompanied by high weave-room humidity but that lower humidity and lower slasher stretch would have better results.

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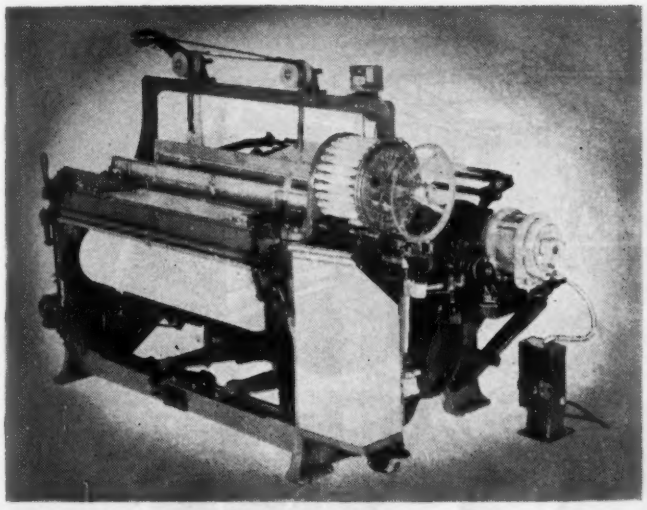

Fig. 2. The Draper X-series looms give excellent service for single-shuttle spun-rayon fabrics.

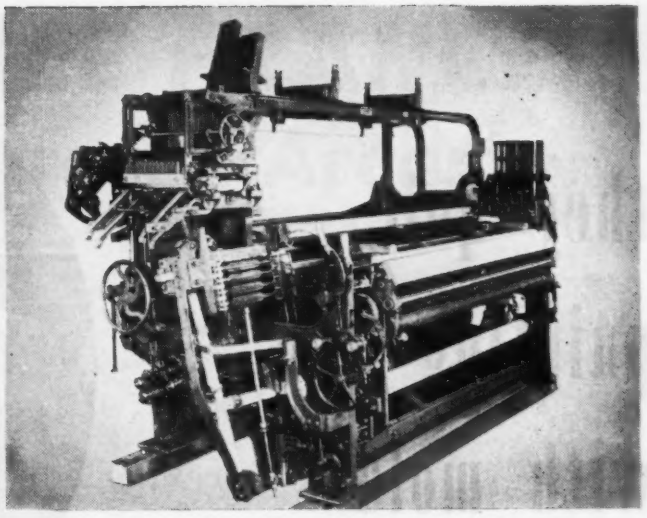

Fig. 3. The C & K C-4 loom, with friction or fully automatic let off, is excellent for multiple-shuttle spun-rayon fabrics.

equipped with the rayon-type beam. The Bartlett let off is preferred where it can be put on, but satisfactory results can be obtained with the Roper let off. Regular cotton-type dropwires and heddles are satisfactory. No covering of the race plate is required. On the take-up roll, rubber or cork fillet should be used, and a space should be left between wraps because the fillet tends to spread. The center filling-fork is most desirable because it stops the loom on the broken pick and helps hold set marks and pickouts to a minimum.

The cotton shuttle with an open eye is suitable, and most weavers put in fur. Taper suggested on filling 20s to 40s ranges from $1\frac{3}{4}$ to $1\frac{7}{8}$ in. The cotton-type filling-bobbin is better than the rayon-type for spun rayon as the finer grooves give less trouble.

Crompton & Knowles looms suitable for weaving spun rayon are listed in Table I.

A considerable portion of spun-rayon fabrics are made on C & K looms with dobbies and Knowles heads. Mills which prefer dobbies like them because they are simpler and capable of running at a higher speed than the Knowles head. On the other hand, those which favor the Knowles head contend that it makes a cleaner shed and that its greater strength is better suited for the type of weaving in question.

Box looms for weaving blended fabrics, as compared with single-shuttle looms, must be considered in the light of spun-rayon fabrics requirements just as is done with cotton fabrics. Filling-yarn variation can be minimized by using box looms. C & K looms can be equipped with either the friction or the fully automatic let off. The center filling-fork is standard for weaving blended-yarn fabrics.

Directions as to covering the take-up roll with rubber or cork fillet apply to the C & K as well as the Draper loom. The take-up roll on the C & K loom has been increased to 20 in. in diameter. Taper on the filling bobbins is close to that used for cotton, but the trend is to use a longer taper. In the majority of instances, the traverse is from $1\frac{5}{8}$ to $1\frac{3}{4}$ in. in length. Shuttles and shuttle eyes are the same as those the mills are accustomed to. No uniform procedure has been noted as to conditioning filling.

Table I.
Looms Suitable for Spun Rayon

Draper:	Range of Width (in.)*	Industry Branch
X	44 to 60	Cotton
X-2	44 to 60	Cotton
X-K	44 to 60	Rayon
X-D	44 to 64	Rayon
**X-P special	44 to 64	Rayon

***(High take up, no center filling fork.)*

Crompton & Knowles	Range of Width (in.)*	Industry Branch
C-4	64 to 72	Cotton
C-5	34 to 58	Cotton
C-6	52 to 56	Cotton
S Series	52 to 56	Silk & Rayon
W-2	82 (mainly)	Woolen & Worsted
W-3	76, 82, & 92 (mainly)	Woolen & Worsted

** C. & K. widths differ from Draper's. Draper uses width of finished cloth, C & K uses width between lay swords. To find maximum width to which warp can be reeded deduct 6 in. from the width between swords. The actual amount deducted depends on the type of temples used, with some only 3 to 4 in. of width between lay swords is lost. Note also that the above list of looms does not include the older models although in many mills they are being used successfully for spun-rayon weaving.*

LOOM SETTINGS. Run the warp tight, as the yarn will stand more flexing than cotton. If the harnesses are timed too early, the selvages will be clipped and, with center fork, loom will knock off on transfer. Be particularly careful to avoid anything that will cut the filling or cause broken picks as this results in set marks—to avoid them looms must be kept running. Three-harness weaves or twills give more trouble from set marks than most spun-rayon weaves.

The loom may be adjusted to reduce or eliminate trouble from set marks as follows:

Set whip roll straight in line with the breast beam. See that both sheds are open the same amount. Set warp stop-motion so that ends do not come into contact with bar and are kept in warp line. Adjust harnesses to cross with reed about 1 in. from the fell of cloth; if this does not help, time them later until the trouble is eliminated. With certain styles, harnesses must be timed still later to get good results. Check the sand roll to see that cloth does not creep, as this may cause trouble.

If still troubled with set marks, other things that can be done are: check crank arm, remove all play from crank arms, make sure the train of take-up gears is working properly, put as much tension on the warp as practical. If set marks are still made, rig up a tension release that works with the brake handle to relieve tension when the loom is stopped.

Weavers and fixers should be impressed with the importance of treating rayon fabrics as high-quality production, and with the necessity for keeping grease and dirt off the yarns and fabrics as such foreign material is difficult to remove during the finishing process.

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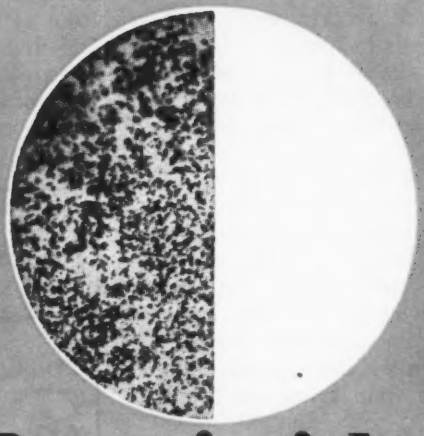

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Plans for TEXTILE FRANCE
Pattern for Liberated Areas

HIGHLIGHTS: Government aims to get French mills into full production as soon as possible, but raw material shipping space is inadequate. Military needs get first call; 13,000,000 yd. of duck is expected in second quarter. Will be late summer before civilian part of program gets under way.

By GLADYS MONTGOMERY
Washington Editor, TEXTILE WORLD

THE UNITED STATES TEXTILE INDUSTRY is deeply interested in the general pattern that has been agreed upon for the rehabilitation of France's textile industry. This same pattern is expected to apply to other liberated areas. Basically, the policy calls for the earliest possible rehabilitation of French mills and the getting of them into full production. This policy is designed in part to bolster the economy of the country, and in part to prevent internal discontent and disorder by keeping the people employed.

This general policy is no longer an issue, but the question of how to effectuate it is causing a great deal of trouble. The Germans left the mills 85 to 90% intact, so machinery is no particular problem at the moment. But there is practically no raw material. The lack of shipping facilities is the major bottleneck and the rapidity of the solution of that problem is the measure of the time-lag in the rehabilitation program.

ARMY WANTS FRENCH OUTPUT. Furthermore, there has been a heated dispute over the use to which the output of the French mills will be devoted, with American military authorities, naturally, seeking a major portion of it for military purposes, while French authorities have been and are still urgently pleading that a substantial part be used to meet the present and even more desperate future needs of the native population.

The question most frequently asked is when will shipping be available for volume transportation of raw materials to France. The answer is that enough ships cannot be released until the end of the European war. The Army is exercising a priority on raw material shipments, which are being used primarily in the manufacture of military supplies and clothing. For the first quarter of 1945, only 26 merchant ships have been assigned by War Shipping Administration to the use of France, and these ships must carry all kinds of cargo for civilian needs. Into this limited space, raw materials for use in textile mills must be balanced as just another item. Even these vessels, the Army can divert to military use in the case of an emergency. This shows how thin is the transportation pipeline to civilian France.

Map of France showing number of spinners, doublers, and manufacturers in each area according to Skinner's Cotton Trade Directory of the World for 1939-40.

Meantime sizeable stockpiles are being built up here for military production in France; 60,000 tons of cotton and 40,000 tons of British wool stock-piled in this country were awaiting shipping space several weeks ago. Cellulose pulp for high-tenacity rayon will be released only when shipping space is actually available, but it will have high priority.

The production program for France is being planned principally around raw materials, as has been stated, with emphasis on cotton. Exports of cotton to France as planned by FEA run about 50% in middling grade; about 30% in strict low middling, about 20% in strict middling. (In prewar days about 60% of French imports of cotton were in the strict middling group). U. S. Army Service Forces have announced a procurement program totalling $1,000,000,000 worth of military supplies to be produced in France during 1945. General Hugh C. Minton, Chief of the Procurement Division of ASF, stated that contracts have been made for 2,600,000 uniforms for American soldiers and for as much duck as it is possible to get. It is expected that production will include gabardine, windproof poplin, khaki drill, high-tenacity rayon, wool socks, etc. At a later date some materials may be produced for use in other theaters of war.

FRENCH DUCK PROGRAM. Duck requirements are in three weights: shelter-tent weight, pyramid-tent weight, and heavy tarpaulin weight. The program as now planned calls for 13,000,000 yd. of duck during the second quarter from France, Luxembourg, and Belgium. The first 13,000 bales of cotton have arrived at a French port and have been delivered to mills in the vicinity of Lille and Ghent. Other shipments are on the way. A goal for duck production has been based unofficially on consumption of 10,000 bales of cotton per month. While a large number of French mills are versatile, they are adapted especially to fine goods. The output of duck, therefore, will be comparatively small, but any amount is considered worthwhile. It is estimated that duck will be in full production by April 1, and that by late summer, mills will be working on about 50 to 60% of the entire program.

The French textile industry was the second most important industry in the country, and, with its associated trades, employed about 1,500,000 persons. In this same year there were listed by Comtelburo 670 cotton-textile mills with 9,521,000 spindles and 188,000 looms. In 1939 Belgium had 1,984,000 spindles, and in 1936 about 52,000 looms. France's average use

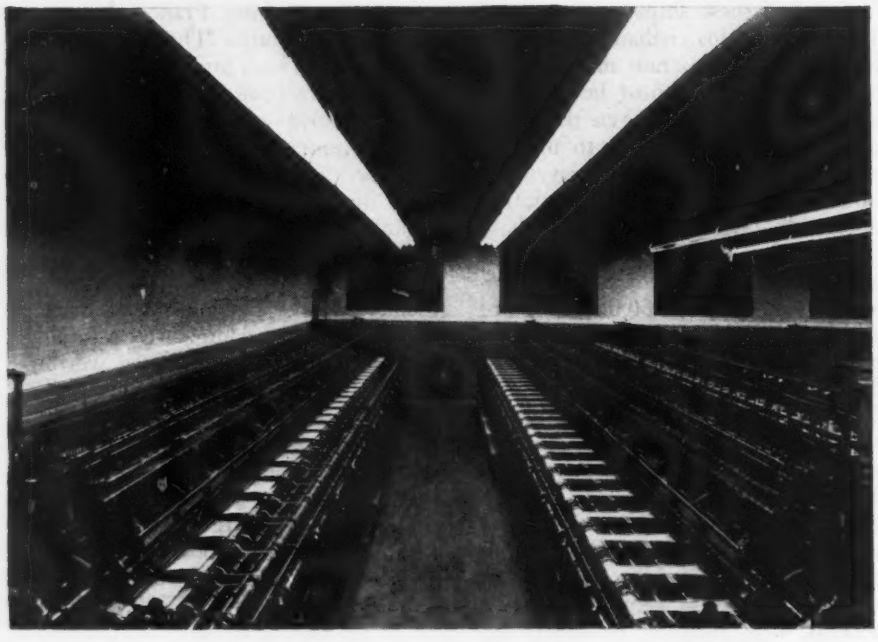
(Continued on page 180)

SYLVANIA NEWS

TEXTILE EDITION

MARCH *Published in the Interests of Better Sight and Sound* 1945

Before-and-After Contrast Shows Resultant Values From Well Engineered Fluorescent Lighting



With the installation of a carefully planned Sylvania fluorescent lighting system, the Shannon Hosiery Mills, Incorporated, in Columbus, Ga., have become a still pleasanter place in which to work.

The earlier system consisted of six 100-watt fluorescent fixtures per alley and provided from 8 to 12 footcandles. The new system, planned by the Georgia Power Company, uses 24 industrial-type fixtures per alley, and distributes an average of 70 footcandles of glareless light. The fixtures, each containing two 40-watt lamps are mounted in continuous rows nine feet above the floor.

Photos Show Comparison

Before the lighting at the Shannon Hosiery Mills received a boost in footcandles, it was better than many plants. Notice, however, in the upper photograph, the lack of sharp detail on the machines. Compare this with lower photo taken after installation of the new fluorescent lighting system. Here the illumination is more evenly distributed; objectionable shadows are avoided, and the work is more clearly visible.

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Variety of Machines Can Do WARP KNITTING

HIGHLIGHTS: Completely lock-knit fabrics can be produced. Raschel is basic type, but tricot is highest producer. Filling attachments sometimes applied.

By OTTO ENGELHARD
Manager of Textile Dept., Machine & Management Corp., New York

This is the second of two articles on the principles of knitting which are presented due to the interest in knitted fabrics by weavers and other newcomers to knitting and due to inquiries received following the publication of articles on tricot in TEXTILE WORLD last September.

THE ONLY TYPE OF MACHINE which produces a 100% lock-knit fabric is the warp-knitting machine which, by the way, is one of the latest developed textile machines.

The basic stitch is shown in Fig. 1; and the knitting action, in Fig. 2. The threads run, mainly, lengthwise, because the fabric is made only from warp threads.

We must distinguish between flat and circular warp knitting machines. The flat warp-knitting machine which will be described first is subdivided into two large groups. These groups are composed of the one- and two-needle bed machines.

The most interesting and most versatile of all types of knitting machines is the two-needle-bed warp-knitting machine. Its proper name is so clumsy and long that it is easily misunderstood so the practical knitter does not like to use it and calls it, briefly, the raschel. The machine, supposedly, is named for the French actress Rachel. Many knitters claim it is called raschel because it *raschels*—a German word which means rustles. It is still used in its old, almost prehistoric, design, unchanged for fifty years.

If you have the opportunity of visiting a raschel knitting plant, you will hear the tremendous noise it makes (it really rustles), though only making approximately 100 r.p.m. It deserves to be modernized because, as stated before, it is the most versatile knitting machine.

It uses latch needles and up to six guide bars. It knits flat and tubular fabrics and produces almost any type of style. It can be built with a coarse or fine gage.

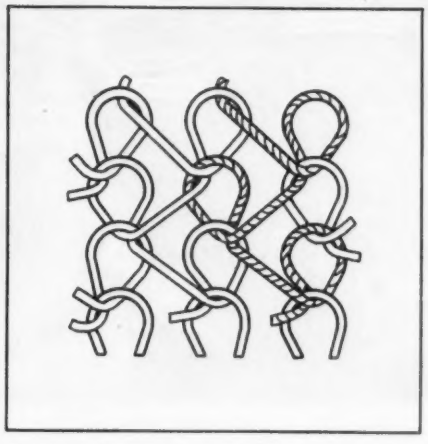

Fig. 1. Warp-knit stitch formation of single-bar machine.

DOUBLE TRICOT. If we replace the latch needles by spring needles and incorporate two pressure bars and a sinker bar, reduce the number of guide-bars from six to two, modernize it to get high speed, and design it in fine gage, we have the simplex machine (Fig. 3). The main purpose in developing that type of machine was to produce a glove fabric which has two faces and no reverse side. The finishing of that fabric gives it a suede appearance and smoothness on both sides. It is often called a double tricot machine. (*Tricot—pronounced tree'co.*)

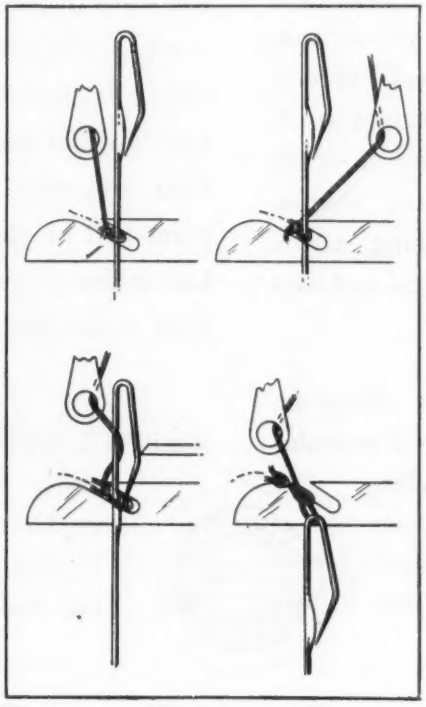

Fig. 2. Relative (not exact) positions of needle, guide, yarn, and sinker in forming warp-knit stitch.

The variety of fabrics produced by it is somewhat limited, compared to the raschel.

The raschel and simplex machines are the main representatives of the two-bed flat warp-knitting machines.

By leaving off one needle bed with all attachments on the simplex machine, we arrive at the high-speed two-bar tricot machine. More correctly, but more clumsily, it should be named the "flat two-bar, one-bed spring-needle, warp-knitting machine." It is at present the most popular representative of the whole warp knitting group.

It is, as the name indicates, a highly productive machine. The most popular dimensions are 28 needles per English inch and 168-in. wide. It has the highest speed of any textile machine. The highest speed reported for any machine, a 64-in. type, is 1000 motions a minute. (See TEXTILE WORLD, February, 1945)

The tricot machine is very versatile, needs only one preparatory operation —warping—and even this operation can be eliminated if plain fabrics are manufactured. It is, therefore, no wonder that the textile experts see a bright future for the high-speed tricot.

To permit a greater variation of styles, a third guide bar can be incorporated. This machine is called three-bar tricot machine.

CUT PRESSURE TRICOT. The addition of one pattern presser to the plain presser creates another type of tricot machine, the so called cut-presser tricot machine. It has three guide bars and two presser bars, which broadens again the field of new cloth creations.

If we use instead of one cut presser, two cut pressers, and instead of three guide bars, four, and construct the machine in coarser gage, we get another type of flat warp knitting ma-

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chine, the so called Kettenraschel machine. It is like all raschel machines, a stepchild of progress and needs redesigning badly. A great many other designs of flat warp-knitting machines have been constructed; none, however, in any quantity.

Only another popular type of one-bed warp knitting machine will be mentioned, the so called milanese machine. It can be described as a cross between circular and flat warp knitting. The warp beams are carried on an endless chain formed like an elongated circle around the flat needle bed. It, therefore, cannot produce a tubular fabric. It is an ideal machine for all types of plaid designs. It works with spring needles. This leads us to a new group of machines, the circular warp-knitting machines. They have latch needles and two sets of guide needles. They are coarse and fine gage and run with high speed. They are not very widely used, however.

COMBINATION MACHINES. In order to combine the advantages of warp and filling knitting, designers have tried to develop a combination of both.

One approach was to add to the filling-knitting machine a warp-knitting attachment. This enlarges its range for creating fancy fabrics and controls the elasticity of the cloth. Such a machine is used principally for high-price wool jersey fabrics for men's and women's outerwear. (Such a machine was described in TEXTILE WORLD, February, 1944, page 123.)

It is only logical that warp knitting machine designers tried to add filling-knitting attachments to the warp-knitting machines. The most popular machine in this group is a machine which manufactures elastic fabrics. An outstanding example is the Kayloom. It has high speed and a wide range of style possibilities.

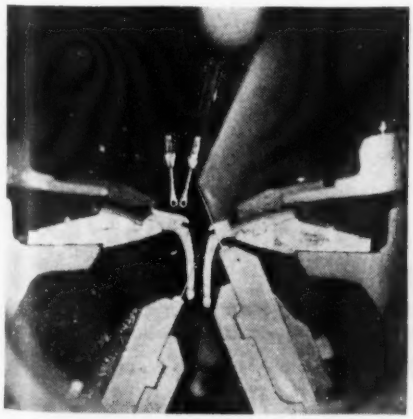

Fig. 3. Knitting elements of the double-tricot (simplex) machine.

M-388 Channels Goods to Low-Price Products

HIGHLIGHTS: WPB gives AA-4 rating to goods meeting requirements. OPA sets up price control on 1942 and 1943 averages.

WASHINGTON, D. C.

THE LONG-EXPECTED anti-inflationary move by the Government designed to reduce clothing prices and to assure an adequate production of essential low and medium-priced garments has taken shape. WPB has issued Order M-388 and three supplemental orders channeling cotton, rayon, and wool fabrics into essential end-uses, and OPA has announced its new Maximum Average Price Plan requiring each producer to restore his price lines on the average to his base period in 1942 and 1943. Both agencies say that they stand ready to make whatever changes are found to be necessary, and certain amendments to the orders are sure to follow.

M-388 contains the basic order. M-388A is the cotton supplement of the order and is substantially the same as M-385, amended on Feb. 9, 1945; M-388B covers synthetic schedules; M-388C, wool schedules. About 75% of all rayon yardage available for civilian consumption, 80% of all available wool yardage, and about 75% of all cotton yardage will be set aside for the manufacture of low and medium-priced goods. Government officials expect a 6 to 7% rollback of prices of clothing as a result.

AA-4 priorities for rayon and cotton fabrics for manufacture of essential garments are extendable only to the converters' level. In the case of woolen and worsted fabrics, they go back to the mill level, since the finishing is also done at this level. If the converters' level proves unsatisfactory, the mill level will be used in all cases.

The order (1) requires sellers of finished fabrics to reserve a high proportion of their civilian fabric deliveries for manufacturers of essential low and medium-priced garments; they will be given priority ratings to obtain the fabrics for the manufacture of essential garments at or below the "price cut-offs" as specified on the schedules. (2) It strengthens existing provisions for equitable distribution. Each garment manufacturer must sell the same proportion of each item he produces, as in 1943, to customers who purchase from him during that period up to 90% of his production. (3) Delivery quotas are established to fill rated orders for fabric from manufacturers producing essential garments for civilian use.

A small amount of free goods may be obtained in the open market without priority assistance to make items desired at prices meeting OPA requirements. In the case of wool fabrics, special limitations are applied to the use of these free goods.

The order affects everyone who weaves or processes fabric from the weaving mills to the manufacturers of finished garments. In the case of cotton and rayon, the mills that generally produce unfinished cloth or gray goods for sale to converters are permitted to sell their gray goods only to converters who have obtained a serial number from WPB or on preference ratings. The converters or finishers in turn are required to deliver fixed percentages of the cloth which they finish to garment manufacturers who present them with ratings. Garment manufacturers are also required to obtain serial numbers from WPB before they can use ratings assigned in the order. In the case of wool cloth, the deliver-quota requirements apply directly to the mills. To get authorizations to use preference ratings for second quarter delivery, manufacturers must file Form WPB-4200, which will automatically give them a serial number for getting deliveries in subsequent quarters.

The Maximum Average Price Plan cuts across the whole board. Every manufacturer covered by the order computes for each category which he sells, his weighted average price in each of the four quarters between July 1, 1942 and June 30, 1943. The weighted average price for each of these base-period quarters becomes his maximum average price for each corresponding quarter hereafter.

Details of this plan have not yet been worked out. According to the present outline, rayon and wool mills will report to OPA the average price of each category of fabrics which they produced in a base period and also the average price of each category of fabrics they produced in the last quarter of 1944 and each subsequent quarter. If the present average price of a mill exceeds its base-period average price by more than a specified tolerance, the mill would be required to give an explanation to OPA.

Good STARCH FINISHES SHOULD BE FELT . . . NOT *Seen!*

Obtain full penetration . . . avoid dusting . . . eliminate dull, lifeless colors . . . by using—

QUAKER DIAPENE C-101

To impart body, fullness and pliability . . . to overcome "dusting out" . . . and to assure bright, sharply defined colors . . . you need a *true plasticizer and binder*—not a "softener"—for the starch and talc in your pure and back-fill finishes. DIAPENE C-101 when used to replace 70% to 80% of the softener, actually plasticizes the starch. Thus modified, the finish penetrates the yarn thoroughly, without excessive surface coating. Specifically, Diapene C-101:

- **Preserves brightness and definition of colors by making surface film thinner and more translucent.**
- **Binds starch and talc, producing a scratch-proof finish that does not "dust out."**
- **Gives all cotton fabrics a more desirable finish, better hand and greater flexibility than do ordinary "softeners."**
- **Makes thin, smooth starch mixes, which finish more yardage per gallon of solution, and thus reduce finishing cost.**
- **Is compatible with other finishing compounds and requires no special application methods.**

On pile fabrics DIAPENE C-101 is often used as a pure finish. Its binding action helps to lock the pile fibres in a manner that produces an erect, full pile with a dense and uniform face. Fullness and pliant firmness are imparted to the backing.

A Quaker Process Engineer will gladly call and discuss with you how DIAPENE C-101 and other Quaker products might be adopted advantageously to the processing and finishing methods in your plant. There's no obligation, of course. Just use the convenient form below.

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CONSHOHOCKEN, PA.

Other Plants in CHICAGO and DETROIT Warehouse Stocks in Principal Industrial Centers

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Name_____ Position_____

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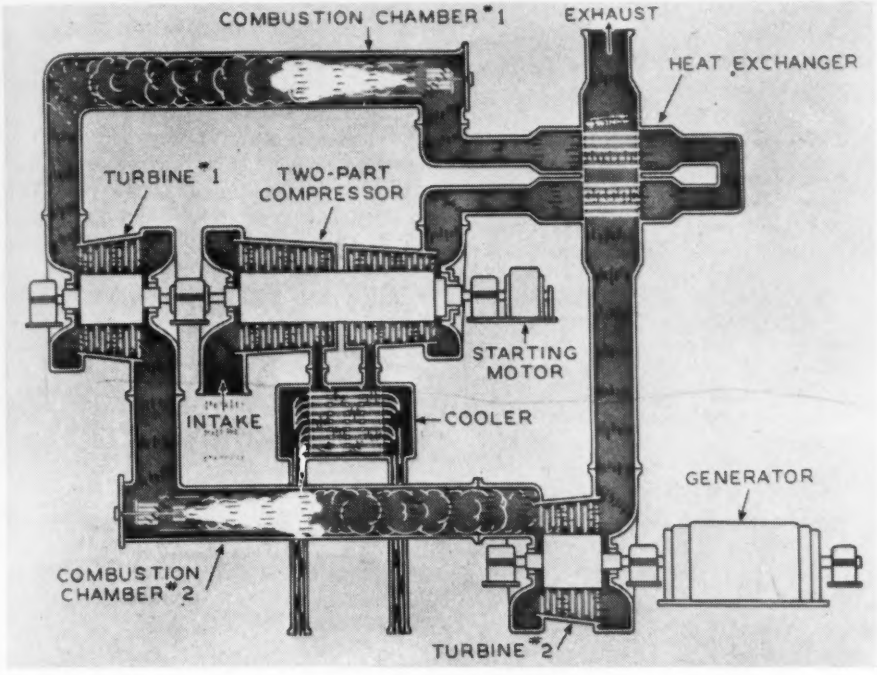
TEXTILE Equipment NEWS

YOUR POWER PLANT OF THE FUTURE?



The gas turbine, newest source of prime power, makes its motion picture debut in a film released by Allis-Chalmers Mfg. Co., Milwaukee, Wis., entitled "Tornado in a Box." Explained in motion pictures for the first time are the development and operation of this unit which has been hailed as "the power plant of the future." Illustrated is a suggested power plant utilizing a small gas turbine for the first and second stage of compression, a cooler to increase volume of air compressed, a heat exchanger to raise incoming air, to 475° F., and a second turbine which drives a generator with a capacity of over 1,500 bhp.

Resin-Bonded Picker Sticks

Resinous Products & Chemical Co., Philadelphia, makers of Tego resin film report that this product is the bonding agent being used in the laminated picker sticks developed in Australia, as reported on page 154 of December, 1944, TEXTILE WORLD.

Acute shortages of hickory lead to the development of this new type of picker, the operational life of which is reported to be from 1,500 to 2,000 hr. Splitting or mechanical failure has not occurred during normal operation.

Hand Tachometer

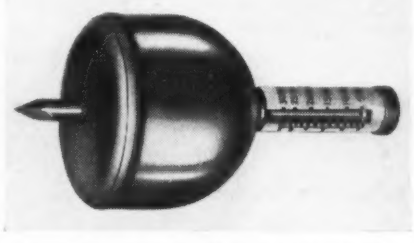
A new form of tachometer is now available for general distribution to textile engineers, setup and maintenance men, and time-study groups.

The instrument, developed by Standard Machinery Co., Providence, R. I., differs from those on the market in that it weighs only 5½ oz. and is 2¾ in. in diameter, which permits one-hand manipulation. The recording in r.p.m. is readily read without the use of any timing or counting device. The readings are constant and record fluctuations which are impossible to obtain with tachometers now on the market. The scale is made up of black figures against an orange background.

The range of this instrument runs from 500 to 3,000 r.p.m., and check of stock models shows a variation of less than 3% from absolute accuracy over the whole range.

A pointed contact-spindle is a part of the instrument for use with shafts that are centered, and an elastic tip is furnished which will slip over the pointed spindle for use on shaft-ends that are not centered.

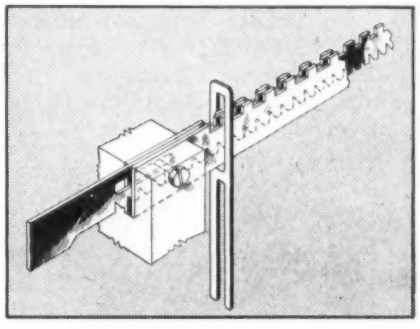
The tachometer is dust- and moisture-proof and has a baked enamel protective coating on all surfaces except the scale, which is enclosed in a plastic tube.



Low-priced hand tachometer (Standard)

Lint-Free Warp Stop Motion

A sliding-bar type of warp stop motion of improved design has been developed and patented by J. H. Burgess, Marion Mfg. Co., Marion, N. C. It is stated, because of construction involved, that lint and foreign matter which usually collects in the detector bar holder is gradually moved toward one end, where it drops out of the holder.



New lint-free sliding-bar type of stop motion (Burgess)

In the conventional warp stop motion of the sliding-bar type, the detector bar has heretofore been provided with a straight edge which slides in the bottom of the slot in the detector bar holder. Lint and other matter collects between the bottom of the bar and the detector-bar holder; thus it raises the detector bar to such a point that when a drop-wire is lowered, it will not engage between the notches

on the detector bar and the notches on the detector bar holders. This results in the loom not stopping as it should and causes the weaving of imperfect cloth on the loom because of failure of the warp stop motion.

The patented stop motion designed by Burgess has a series of teeth on the lower edge of the detector bar which serves to move the lint and foreign matter gradually out one end of the detector-bar holder. While the stop motion is not at present being manufactured, it is believed that production will be started some time in the near future.

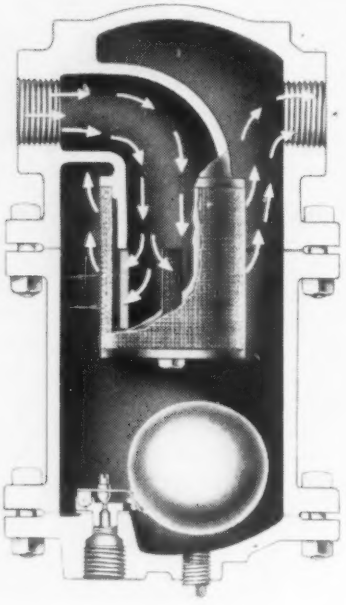
Self-Draining Compressed-Air Separator

A self-draining compressed-air separator, which eliminates the need for external traps or the uncertainties of manual draining, has been developed by Johnson Corp., Three Rivers, Mich. Known as Type SA separator, it has a built-in trap mechanism, which releases from the separator, automatically, all the water, oil and other moisture that has been removed from the compressed air.

Two principles are employed in operation, (1) expansion and (2) change of direction, a combination which, according to the manufacturer, achieves an efficiency of more than 99%. The entering air is first allowed to expand slightly, thereby precipitating most of the entrained moisture. Then it passes through a coarse wire mesh—changing direction of flow abruptly many times, and surrendering the remaining particles of foreign matter.

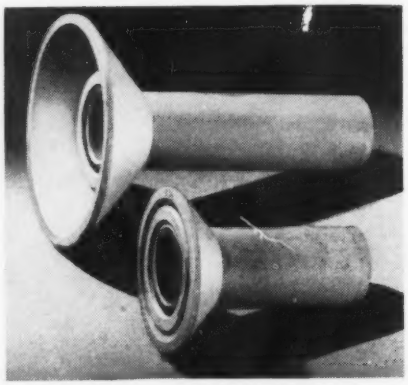
The trap mechanism has a spherical float and chrome-steel valve and valve seat that is mounted on the bottom plate of the separator body, and can be quickly and easily removed for inspection or cleaning. All the moisture that has been removed from the compressed air drops to the bottom of the separator, and when the level of accumulated liquid raises the float, the valve opens and the liquid drains out.

The Johnson Type SA compressed-air separator is available with capacities of 80 or 160 cu. ft. of free air per min. at 90 lb. pressure. The smaller size has inlets of $\frac{3}{4}$, 1, or $1\frac{1}{4}$ in., the larger has inlets of $1\frac{1}{2}$ or 2 in.



Compressed-air separator with integral automatic trap (Johnson)

SINGLE-HEAD PLASTIC SPOOL



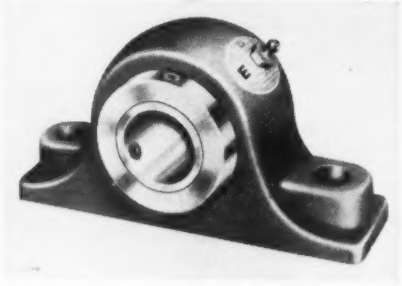
A new single-head spool with a parallel-wound tough paper tube firmly locked in a plastic base, or head, has been announced by the Plascomold Corp., Unionville, Conn. The plastic material itself, which is cold molded, is specifically designed for thread industry application. The bearing surface molded into the base assures firm and even placement against the spindle shoulder. Because of the means of locking the tube into the base and the care taken in its placement, each spool's over-all length is the same as every other spool. Made in all standard lengths, the spool can be produced in color.

Pillow Block Bearing

A new Dodge-Timken bearing, known as Type "E," which is now available in both pillow blocks and flanged units, has been announced by the Dodge Mfg. Corp., Mishawaka, Ind. This bearing was engineered to provide all features necessary for satisfactory performance under normal service conditions. It is designed to give 30,000 hr. or more of service under conditions for which it is adapted, as determined by use of standard selection tables applying to the complete Dodge-Timken line.

The method of fastening to shaft is simple and effective. On each e of the extended inner race is a ste collar having two headless setscrew spaced 120° apart and extending through clearance holes in the inner race to the shaft. These four setscrews provide a positive lock to prevent rotation of the inner race on the shaft.

Housings are compact and rugged and are precision machined to close tolerances on automatic machines. Simple, effective labyrinth seals prevent loss of lubricant and protect bearings against damage from dust, dirt, or moisture. These seals are equally effective whether the bearing is on or off the shaft. The bearings are completely assembled, lubricated, and adjusted at the factory. While not fully self-aligning, these bearings have enough self-alignment inherent in the design and arrangement of the Timken rollers to compensate for any normal misalignment.

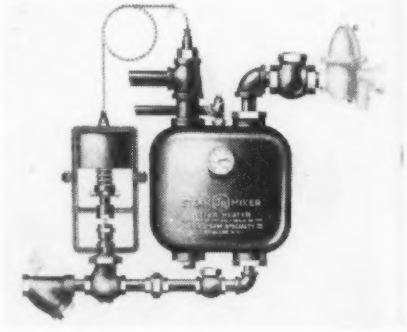


Pillow block equipped with Timken bearings (Dodge)

Steam-MixerWater-Heater

A compact, completely packaged unit, including heater, temperature-regulator, temperature-pressure relief valve, thermometer, and, where necessary or desired, water-pressure regulator and steam water pressure gages, has been developed by O'Brien Steam Specialty Co., Heffernan Bldg., Syracuse 2, N. Y.

Known as the O'Brien steam-mixer water-heater and employing a new



Unit for heating hot water and utilizing condensate (O'Brien)

muffler-diffuser type mixing nozzle, the heater is efficient and quiet. Not only is all the heat of the steam delivered to the water, but the condensate itself is utilized as hot water. There is no waste as condensate, and no condensation-return system is required. The unit is designed for steam pressures of 50 to 150 lb. per sq. in.

The steam-mixer heater can be easily installed near the point of use to deliver an adequate supply of hot water at controlled temperatures. Steam-pipe sizes range from ½-in. to 1½ in. with capacities ranging up to 5,500 gal. per hr. A wide selection of temperature ranges are available, making the unit practical as either a primary or booster heater.

Electric Car Puller

A car spotter designed for hauling railroad cars of all types at sidings has been announced by American Engineering Co., Philadelphia 25. This puller, known as Class 2½ Lo-Hed Car Puller, is a husky hauling device in which the barrel, gear box, and motor are integrated in a single, streamlined unit. Starting line pull is 5,000 lb., with a single line or more with various block combinations.

Electric puller for spotting cars (American Engineering)

Lamp Fixture Hanger

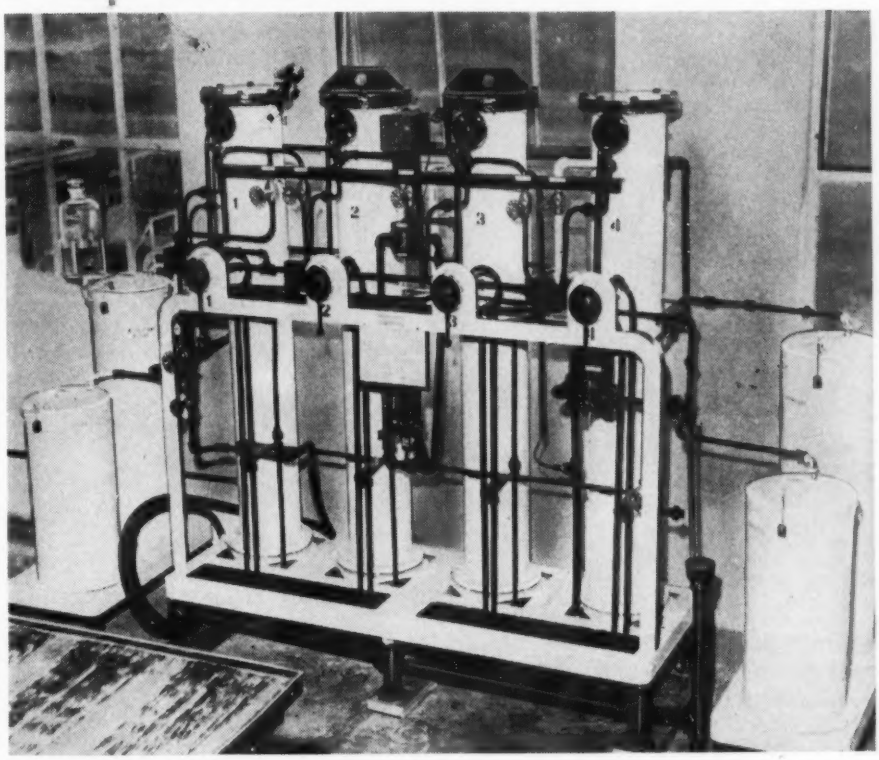
A new and different industrial fixture hanger has recently been developed by Day-Brite Lighting, Inc., St. Louis, Mo. This hanger serves a triple purpose in that it provides an outlet box cover with a receptacle, a means of supporting chain-suspension fixtures, and a grounding arrangement so that fixtures furnished with two-wire cord and plug sets can be used.

The Hydee hanger saves the work of extensive drilling when mounting fixtures the old way. It entirely eliminates the need of centering, positioning, punching or drilling any mounting holes whatsoever. Only a screwdriver is needed to make a complete installation. Simply make wiring connections, screw the hanger to the outlet box cars, then hang the fixture.

This hanger fits any standard 4-in. or 3¼-in. outlet box or open-type plaster ring. It is a complete device, furnished with two 5-in. suspension chains, cord clips, "S" hooks and receptacle. The plate is in aluminum-gray enamel with the chain, hooks, and clips in a rust-proof finish.

Lamp-fixture hanger simplifies hanging of industrial fixtures (Day-Brite)

FILTER PRODUCES EQUIVALENT OF DISTILLED WATER



The chemical equivalent of distilled water becomes readily available through the use of this Filt-R-Stil equipment which uses a process developed by American Cyanamid & Chemical Corp., 30 Rockefeller Plaza, New York 20, for producing mineral-free water through the medium of melamine-derived. ion-exchange resins. The portable unit illustrated is a pre-fabricated type, with capacity of 2 to 3 gal. of mineral-free water per minute. The Filt-R-Stil is also produced in a laboratory size with a capacity of 30 gal. per hr., and in a small portable unit with capacity of 8 to 10 gal. per hr., as well as in special, permanently installed sizes for large industrial users.

Plastic Mat

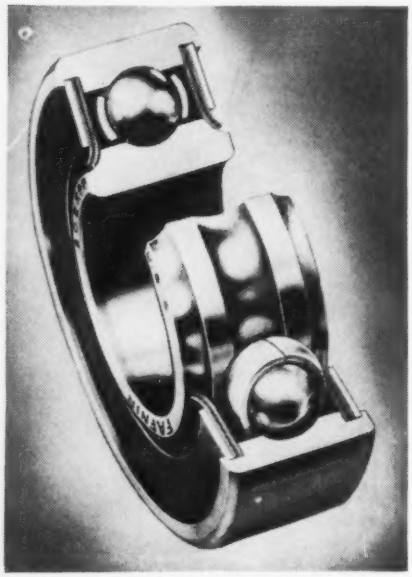
A new type of matting for use in many places where rubber matting was formerly employed has been made available by American Mat Corp., 1787 Adams Street, Toledo 2, Ohio.

This product, called Ameritred, is a solid, plastic friction-type mat made by firmly binding friction compound together by a plastic. Uses for this mat may be found about dyehouses and finishing rooms where the presence of water offers a slippage hazard. It lies flat and affords a non-slip surface. Jet black in color, it is available in sheets 29 in. by 63 in. which are 9/64 in. in thickness.

Sealed Ball Bearing

A new type of sealed ball bearing, known as Plya-Seal, is being offered by The Fafnir Bearing Co.

The sealing element of this bearing consists of a diaphragm-type, contact seal comprising two members—a flat, flexible sealing washer of synthetic rubber-impregnated fabric and a split re-



Sealed ball bearing assures retention of lubricant (Fafnir)

taining ring of spring steel. Due to the minimum space required for the two seal parts, Plya-Seal bearings, except in the extra-small sizes, are held to the same widths as standard unsealed bearings. The standard width of the Plya-Seal bearings enables them to be used in applications where shielded bearings previously used were inadequate for the service.

Firmly held in the outer ring, the sealing washer does not rotate with the inner ring but is in contact with a ground groove to form an effective seal with a minimum of friction.

The seal can be easily removed and replaced to allow inspection, washing, and re-greasing of the bearing. This feature is especially desirable in applications where periodic overhauls of equipment are standard practice.

Control Checks Liquid Mixtures Electronically

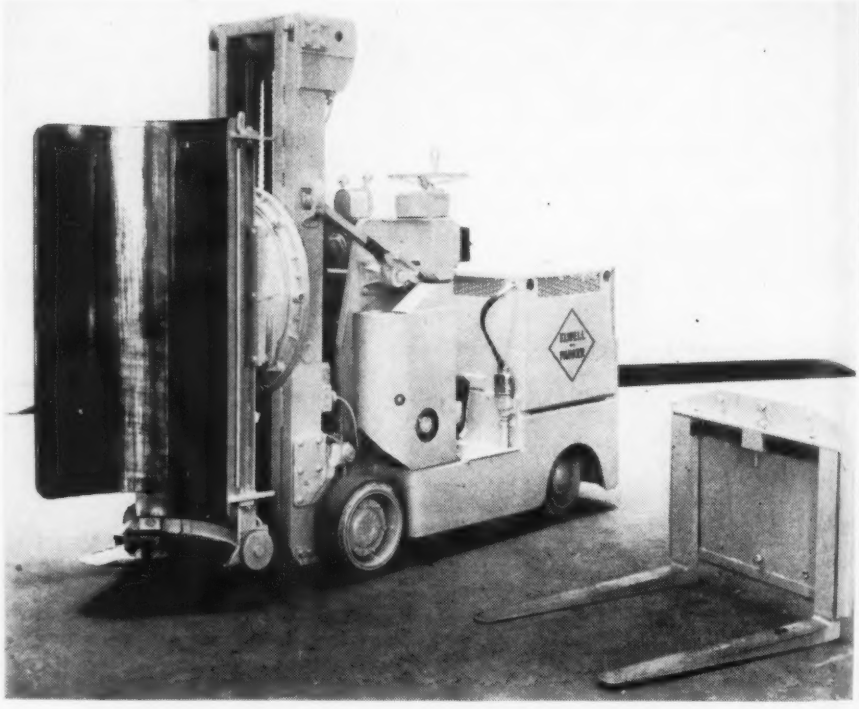
An electronic control for detecting and controlling changes in liquid concentrations through operation of signals, valves, or pumps has been announced by Photoswitch, Inc., Cambridge, Mass. This electronic method provides precise and accurate control for all applications in which changes in concentration are accompanied by a corresponding change in electrical conductivity.

Installation requires only that a probe fitting be mounted on the tank, with probe extending into the liquid. This probe is wired to the electronic control which may be located wherever desired. An adjustment on the

(*Continued on page 192*)

Interchangeable Swivel Forks for Power Trucks

Greater flexibility in operation is the outstanding feature of power industrial trucks, Type F-15, equipped with interchangeable swivel forks, and produced by Elwell-Parker Electric Co., Cleveland, Ohio. This type of material-handling truck is suited for use about printing plants and cloth rooms of textile mills. Equipped with a roll-handling scoop, this truck can pick up, carry, store, or stack the heaviest cloth rolls, and load or unload them in railroad cars. The rolls can be carried or stacked in either vertical or horizontal positions with no damage to the cloth. It requires only a few minutes to remove the roll handle and attach the fork; then the truck can be used for handling and hauling flat stock on skids or pallets, or for handling bales of raw materials in mill or warehouse. Advantage of the scoop is that it can be swiveled almost instantly from horizontal to vertical position for easy passage through doors or narrow aisles, and just as quickly returned to horizontal position at destination if it is desired to deliver or stack the roll horizontally.



Roll handler may be easily replaced with fork (Elwell-Parker)

TO KEEP 'EM RUNNING

Testing Lamp Starters

If a fluorescent lamp blinks or fails to light early in life, according to an article in a recent issue of *Sylvania Lighting* News, published by Sylvania Electric Products, Inc., it does not necessarily indicate premature lamp failure. The trouble may be a defective ballast or a faulty starter. However, the first thing to do is to replace both the lamp and the starter with units known to be satisfactory. If the new lamp fails to operate with the new starter in place, loose connections in the wiring or ballast may be the reason, and the electrician should check the entire circuit.

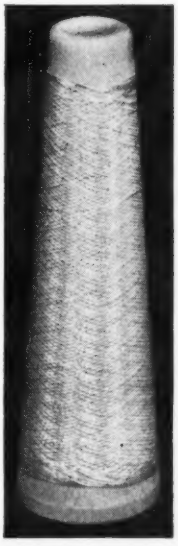
To check the questionable lamp and starter that have been removed, test them in a fixture known to be performing properly, or return them to the maintenance shop for checking on a simply-constructed test-board.

HOW TO MAKE TEST BOARD. Fig. 1 shows the wiring diagram for a

Holding the *Selvage Edge* throughout Coning and Delivery

The degree of "surface" required to hold a selvage edge in the coning operation and throughout the delivery of yarn varies according to the number of turns per inch in the yarn itself.

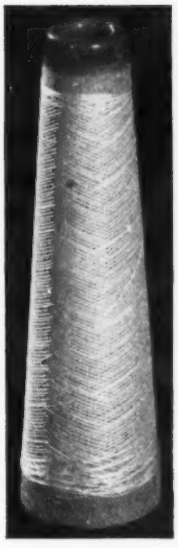
This is a "slip"—Surface of cone at this point not sufficient to hold yarn.



What happens to low twist rayon (1½-2 turns per inch) is a tendency to slippage away from the selvage edge. The degree of surfacing of the cone must strike a happy medium in the depth of the pile—enough to "hold"—not enough to cause "drag." Hence the "velvet" surface band top and bottom, with a smoother surface inbetween, but the "velvet" band must be just the right "pile."

Best solution is scoring to give positive holding line to edge.

This is a "roll"—caused by yarn tension pulling toward center of cone.



Rayon of ten turns and up is "hard" enough to "roll" away from the selvage edge, due to the natural tendency to pull toward the center of the cone. Scoring, *plus* velvet surfacing over the entire cone is held as the best solution for building a perfect foundation in the primary winding, and that will hold until delivery of the last turn.

Correct degree of pile in velvet surface holds yarn to edge.

Technical advances at SONOCO *are being made continuously to cope with the changes in yarns. Our Technical Service Department is at your service.*

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SONOCO MAKES *EVERYTHING* IN *PAPER CARRIERS*

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BRANTFORD ONT. HARTSVILLE S. C. MYSTIC CONN.

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simple test board that can be used to check either lamps or starters. *A* is the connection to the 100-125 volt a.c. line. *B* is a single-lamp ballast of the same wattage rating as the lamp being tested in *C*, the lamp sockets. *D* is the starter socket.

DUMMY-STARTER TESTER. For use with this test board, you can make a dummy-starter tester from a spare or used starter by removing the can and connecting the two contacts permanently, Fig. 2. Replace the can and scratch it with a distinctive mark so that it will not be mistaken for one of your regular starters.

TESTING THE LAMP. Simply place the lamp to be tested in lamp socket *C*, and place the dummy starter in socket *D*. If the lamp is good, both ends of it will glow when the dummy starter is in the socket; and the entire lamp will light when the dummy starter is quickly removed. If the lamp does not perform in this way, it is worn out and should be discarded.

HOW TO TEST STARTER. To test starters on the test board, put a lamp known to be good in socket *C* and put the questionable starter in socket *D*. If the starter is good, the lamp will light in less than 30 sec.

CAUTION: Test No. 2 starters with 15- or 20-watt lamps only; No. 4 starters with 30- or 40-watt lamps only; No. 5 starters with 6- and 8-watt lamps only; No. 6 starters with 100-watt lamps only; and No. 7 starters with 65-watt lamps only.

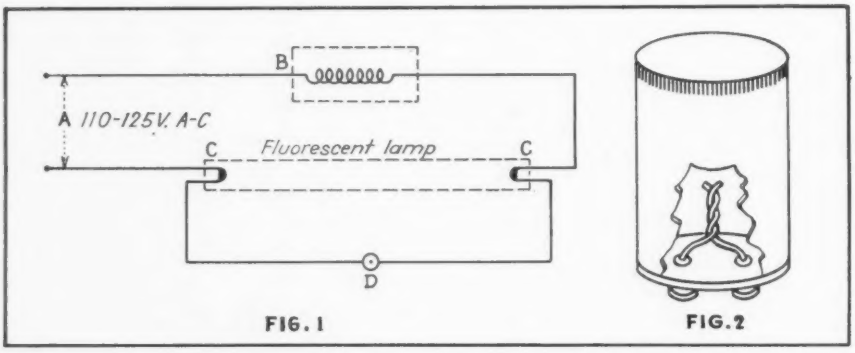

FIG. 1

FIG. 2

Fig. 1. A test board for checking either lamps or starters may be made, following the indicated diagram. Fig. 2. Dummy-starter tester is made by connecting the two contact points.

PRODUCTS & PROCESSES

Compatible Resin

ALLYMER RESINS; Pittsburgh Plate Glass Co., Columbia Chemical Division, Barberton, Ohio.

These resins are crystalline monomers which when heated in the presence of a peroxide catalyst such as benzoyl peroxide solidify into an insoluble, infusable clear polymer. At present, these resins have been used largely in the casting of transparent sheets, or other objects; but they also have been used in both impregnating processes and as laminating materials for cotton and other cloths.

Their ready compatibility with other resins and their inertness to the action of solvents and chemicals are properties of interest.

In applying them to cloth, common solvents such as acetone alcohol, carbon tetrachloride, etc., can be used.

Commercial Production

SILICONES; Dow Corning Corp., Midland, Mich.

Dow Corning fluids, better known as the Silicones, a group of organosilicon polymers, are now in production commercially. These resins are being manufactured in various viscosities ranging from liquids as thin as water to those that barely flow at room temperature. Those resins which have been made so far possess unusual chemical and physical properties. One of the resins is being used as a coating or impregnating material for Fiberglas cloth and asbestos cloth. Some of the resins made will not freeze at temperatures as low as that of dry ice and can be used at temperatures up to 400 or 500° F. They possess a high degree of electrical resistance and will not carbonize or darken when subjected to prolonged heating.

Application processes, at present, require the use of solvents and proper ageing of the resin. Being so new, few uses have as yet been developed for them in the textile field, but it is believed many interesting applications will be forthcoming.

New Resin Emulsion

NEVILLOID C-55; The Neville Co., Neville Island, Pittsburgh, Pa.

For the first time and after extensive experimentation, what is believed to be the first water-soluble, coumarene-indene resin emulsion has been perfected. It contains 65% solids by weight and is characterized by its stability. The emulsion itself has a pH of 6.5 to 7.5, and is practically neutral, but is stable over a pH range as great as 3.5 to 10.5. It forms a semi-glossy, slightly tacky, and slightly translucent film, which is continuous and cohesive. This film will withstand considerable flexing without breaking.

Nevilloid C-55 is said to be compatible with many latex emulsions and alkyd resin emulsions to form uniform, but somewhat opaque, films. It gives clear films when blended with melamine resin emulsions. It is also compatible with wax emulsions such as paraffin and carnauba. This resin possesses considerable plasticity, which would seem to be of interest when incorporated with harder and more brittle types.

Plasticizer for Coatings

"FLEXOL" PLASTICIZER 4GO; Carbide & Carbon Chemicals Corp., 30 East 42nd Street, New York.

"Flexol" Plasticizer 4GO is offered as a plasticizer for synthetic rubber, nitrocellulose, ethyl-cellulose, vinyl acetate, vinyl chloride acetate, and vinyl chloride resins.

It is a clear, light-colored liquid with a very low vapor pressure, practically insoluble in water and with a low absolute viscosity. This recommends it for use in coating compounds where low-temperature flexibility is an important factor.

...and you ain't seen the half of it!
This is only the beginning of the story—the story of PLEXON, the plastic coated yarn. The full story can't be told till after the war is over. In the post-war days ahead, PLEXON will make an important contribution to the textile industry.
PLEXON offers you the dramatic advantages of its plastic coating while still retaining the traditional qualities of its cotton or rayon base. Made in a full range of colors and in various finishes, PLEXON may be woven or knitted on existing equipment without the necessity for change-over.
PLEXON yarns woven into fabrics are currently being used in the shoe, handbag, drapery and upholstery fields.
This is the time to investigate PLEXON. We are in a position to supply small quantities of experimental PLEXON yarn to those textile mills who are working on their post-war lines.
FREYDBERG BROS. STRAUSS
INCORPORATED
Plastics Division
212 Fifth Ave., New York 10, N.Y.
PLEXON
THE PLASTIC COATED YARN
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Kinks AND SHORT-CUTS

A $25 WAR BOND FOR YOUR IDEA

A $25 War Bond will be awarded each month for the most useful "kink" published in this department. This contest is open to all readers of TEXTILE WORLD, and there is no limit to the number of entries any one person may make.

Contributions must be received not later than the last day of the month to be eligible for the award for the second succeeding month. Items may pertain to production methods, mill engineering, safety, cutting costs, improving quality, speeding up production; in brief, any little device, stunt, kink, or short-cut which you have tried out in your own mill and which you believe will be helpful to other mill men. Items should contain sufficient detail to permit other mill men to utilize the ideas in their own operations. Previously published material is not eligible for the award. Judges of the contest are the editors of TEXTILE WORLD.

TEXTILE WORLD shall have the right to publish any items submitted. Items which are accepted will be paid for at our regular rate for this type of matter with extra payment for appropriate sketches or photographs. The sketch you submit need not be a finished drawing.

In writing to this department, give your real name and address as evidence of good faith and to permit payment for items accepted. Your identity will not be published unless you give permission.

Contributions should be addressed to: Technical Editor, TEXTILE WORLD, 330 West 42nd St., New York 18, N. Y.

★ WAR BOND PRIZE WINNER FOR MARCH

(January Contest)

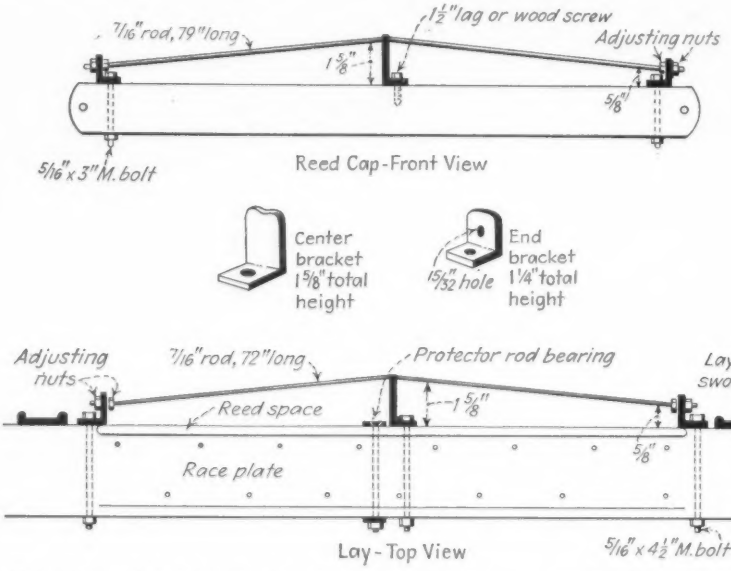
Two Truss Rods Steady Lay and Reed

We have found the following plan very useful in keeping lays aligned and reeds in place especially on looms built for wide, heavy fabrics. When the rods shown are applied and adjusted properly, a much smoother and easier running loom results.

The rods shown are for use on D-model Draper looms with 68-in. reed space, but can be used on any width loom with good results. The parts are few and inexpensive; the total cost is around 80¢.

The truss rod on the back of the lay will not interfere with the harness if the first harness is set ½ in. from the reed cap when the cranks are on back center. The $\frac{7}{16}$-in. rod is cut to the desired lengths and threaded for $\frac{7}{16}$-in. nuts. The end and center brackets are cut from angle iron and are the same on reed cap and lay.

The drawing should give a clear idea of how to apply and adjust the truss rods. (K-299) F. A. Kidd, Roanoke Rapids, N. C.



Note that end brackets on lay are reversed so that lay sword will not interfere with rod. Tightening adjusting nuts puts stress on rods and pulls lay into line. Rod on reed cap holds reed firmly in place.

Splicing Cotton Belt Technic Is Developed

The illustrated method of splicing cotton web belting was developed by Max Kholos of Westinghouse Electric Mfg. Co., and is listed as a War Winning Suggestion (Serial No. 1909) by the War Production Board. Westinghouse has acquired the patent on the process, according to War Production Drive Headquarters, so that the process might be given to other companies. A description of the process follows:

After tapering the belt ends, they are prime coated with a solution made from solvent and cement. Upon drying, which requires from five to fifteen

A WARP SIZING STARCH THAT STOPPED A TEXTILE *Blizzard*

ARROW GUM, a specially prepared warp sizing for spun rayon, effectively reduces shedding on the slashers and looms. This reduced shedding is accomplished by ARROW GUM'S high adhesiveness and strong, flexible film which securely anchor loose surface fibers.

– and reduced shedding, in turn, increases operating efficiency. How? By firmly adhering the individual fibers over the greater part of their length – by means of ARROW GUM'S high penetrating adhesiveness – which increases the tensile strength of the yarn . . . makes it more elastic, flexible . . . prevents production time-loss due to breakage on the looms.

– and reduced shedding also increases fabric quality. How? By maintaining a proper fiber blend-balance in the yarn during weaving – by means of ARROW GUM'S efficient coating properties – which assures finished fabrics with the appearance and handle of expensive worsteds.

Ask for a trial ARROW GUM demonstration – NOW. A National technician can run off a few beams without upsetting your regular production.

National also produces: KOVAT, a cold water swelling gum for vat and discharge printing; HOOSIER Pearl Cornstarch; LANAMYL for sizing worsted yarns; FLOJEL, uniform, thin boiling corn starches in all standard fluidities; FIBERJEL "V" for sizing filament viscose yarns; FIBERJEL "AC" for sizing filament acetate yarns; NALEX for sizing fine combed cotton yarns.

Offices: 270 Madison Avenue, New York 16; Boston, Philadelphia, Chicago, Indianapolis, San Francisco, and other principal cities.

National STARCH PRODUCTS

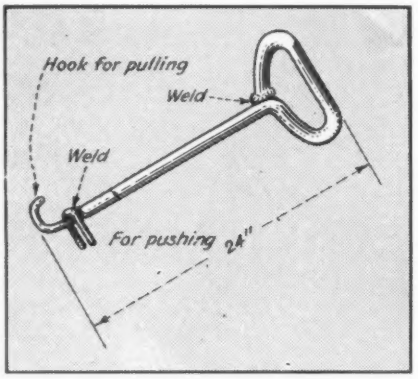
STARCHES—AND SPECIALTIES WITH EASILY DEMONSTRATED SUPERIORITY

minutes depending on the size of the belt, a sheet of cement which has been immersed in solvent is placed between the ends of the splice and the belt is then securely clamped and allowed to dry.

Drying time varies with the size of belt and room temperature. At a room temperature of 72° F., the clamps can be removed from a 2-in. wide, 4-ply belt after 15 min. of drying. About 15 to 20 more minutes of drying should be allowed before the belt should be used. This is necessary, as the solvent in the cement at the center of the splice does not have an opportunity to evaporate in so short a time while the clamps are in place.

The entire cycle from cutting the belt to the time it can be used is about 30 to 40 min. for a 2-in. wide, 4-ply belt.

Machine "down time" on machines that require that the belt be cemented at the machine can be held to a few minutes by virtue of a plan worked out at Westinghouse. On critical machines or where similar belts are used as in the case of drill presses and surface grinders, belts cut to length with ends tapered and primed are carried in stock by the belt department. Should a belt break, the beltman takes a stock belt and a temporary belt to the machine. He installs the temporary belt which is mechanically fastened, and this permits the machine to be placed back into operation. The stock belt is then threaded on the machine, cemented, and allowed to dry. When dry, the temporary belt is removed and the permanent endless cemented belt is slipped into place. The "total down time" is only a few minutes. Since cemented woven belts have been outlasting other belts to a considerable extent, the number of trips made by beltmen can be greatly reduced. (*K-309*)



There is less danger from splinters or from mashing fingers when using this trucker's tool.

Tool Assists Truckers To Push and Pull Cases

After watching one of the men in our shipping crew have great difficulty in trying to load a large case of rayon yarn onto his hand truck, I fashioned the handy hook as shown for his use.

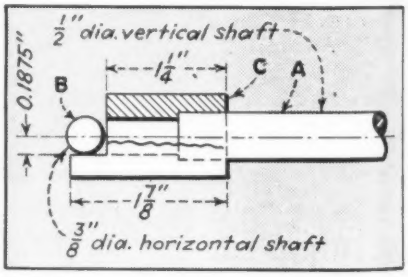
Some rayon shipping cases weigh two hundred pounds and are rather cumbersome for a lone trucker to place onto a hand truck for wheeling to storage, to warping, or to quilling departments. The tool shown makes it easier to load or unload full cases.

The tool is made from ½-in. rolled steel and is approximately 24-in. in length after being shaped. The handle is welded where the end joins. A short length of steel shaped into a U is welded 1-in. back of the point end and is intended as a pusher. As the truck is moved against the case, the trucker shoves the top end of case in order to get the front end of truck underneath. The pointed end is then used to hook the far side of the case to pull the case onto the truck. The tool also has other uses around the storeroom. (*K-306*)

Axial Alignment Gage For Bevel and Miter Gears

To obtain smooth operation and longer life of bevel and miter gears, it is necessary that their shafts be in accurate axial alignment. When the shafts are of different diameters, as for the gears which drive the dials in Scott & Williams, Inc., machines, Models HH and K, we use a simple stop gage, as shown in the sketch, when we replace a latch ring or cross bar. We first make sure that the pinion at the bottom of the vertical shaft A is closely and correctly meshed with the ring gear, then we center the dial with the centering device and clamp the stop gage to the horizontal shaft *B* with the stop toward the front of the machine, and secure the cross bar in this position.

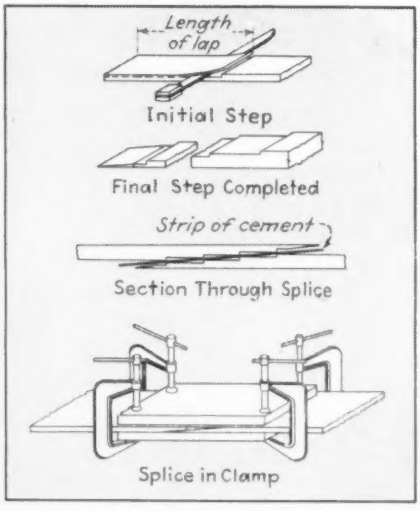
The stop head *C* was made from a broken long pinion from one of the above machines, its driving end required a minimum of machine work. (*K-285*)



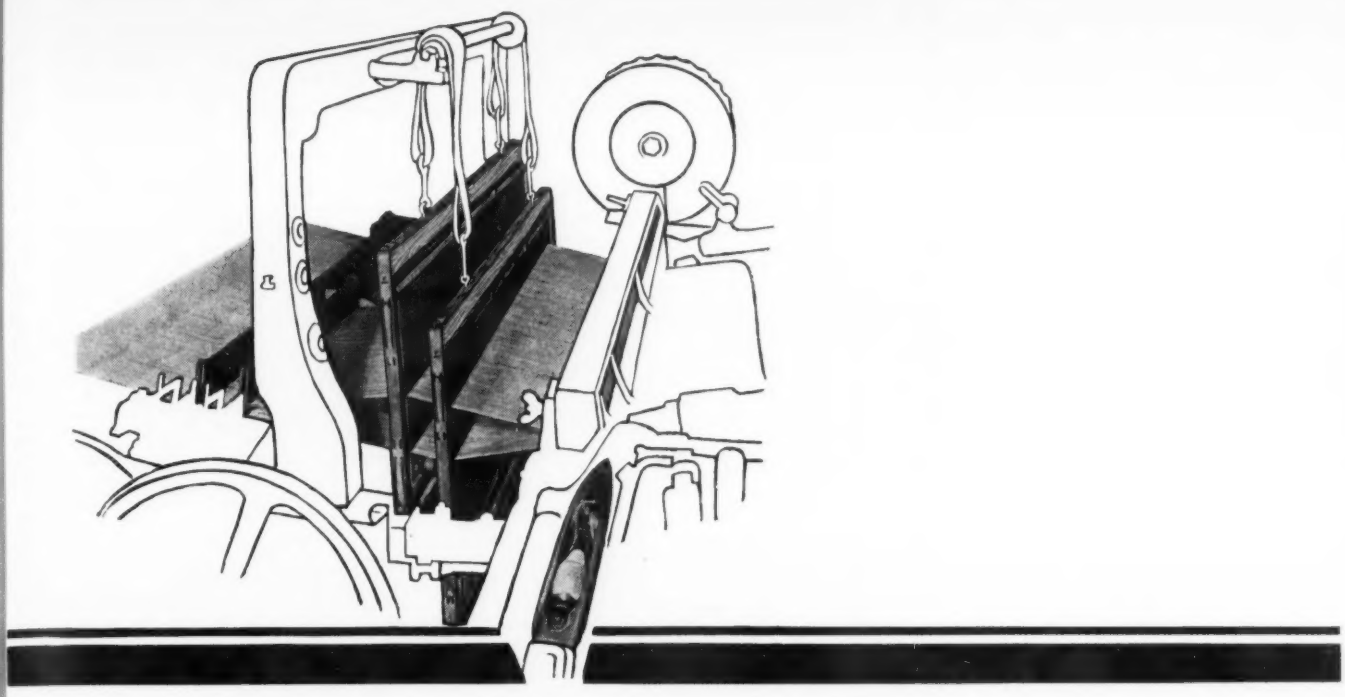
Gage centers shafts of unequal diameters.

Special Piece-Up Spool Suggested for Breakouts

This idea I think is a time saver and cloth saver as well. Occasionally (sometimes too often), the slashing department will send a warp to the weave room with a break in it or with ends missing. When there are only three or four ends in this break, other ends are usually drawn in from the selvage; but where there are more, the weaver or smash piecer often will disconnect the stop motion until the ends come



Instruction in splicing cotton belting follows the four steps shown at the right. Procedure is similar to that used for rubber or leather belts.



The Real Working Parts of any Loom *are* The Harness, Shuttle & Reed

The perfection of each of these parts govern the productivity of the loom and the quality of the product.

It is vital, therefore, to have

Your Loom Harness Equipment as perfect as it is possible, irrespective of first cost.

Such equipment bearing the

QUALITY LOOM HARNESS EQUIPMENT
Ste-Hed-Co

and Southern Shuttles Trade mark and the "S" crimp on the Heddle

guarantees this ideal economical condition.

An experienced Field Engineer is located in every Textile District, anxious to cooperate with you in selecting the proper equipment for the material being woven.
Make use of this free technical service.

Do not lose sight of the fact that Ste-Hed-Co Equipment is the Best.

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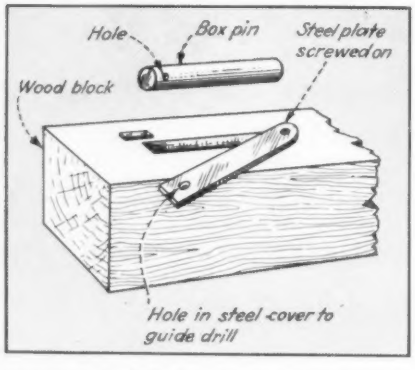
KINKS & SHORT-CUTS

(Continued from page 142)

up and will make rags of the cloth woven. To take care of this, I suggest that when the slasher tender puts the ends back in the warp, he count them and make a smash spool and send it along to the weave room with the loom beam.

Simply take the same number of quills or cones and place them in back of the slasher, scattering them over the section beams to keep them from being sized together, and run them over to the front. Then use an ordinary pocket comb to keep each end in its place and place them on a smash spool. Wind on the spool an amount that should take care of the smash, and attach it to the loom beam. When the smash or break comes up, the weaver can place the spool where it will turn after he has pieced up the ends. All the ends are on one spool instead of several.

The foregoing practice results in a neater job; and if carefully done, no cloth is spoiled as is usually the case if the ends are left out. (K-272)



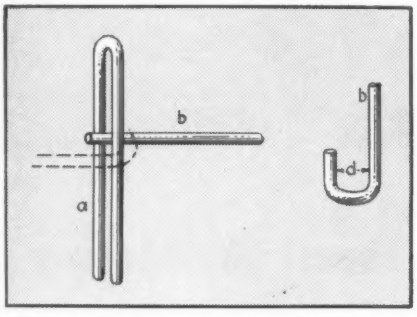
Hole in wood block should fit pin snugly.

Uniform Holes Drilled With Block and Jig

Fiber box pins have proved to be superior to steel pins, as little wear occurs to binder and shuttle boxes where such pins are used. Recently, we found that it was necessary to purchase this fiber in long lengths and cut the pins, if we desired to continue using them. After cutting the pins to required length, a small $\frac{1}{16}$-in. hole was drilled into the one end and a cotter pin used to prevent the fiber pin from dropping through or from working down. Drilling these holes became an easy matter after fashioning the gadget shown in the sketch.

The pin holder was made from a block of hardwood. At one end, a cavity was hollowed out to take the pin, and a steel plate was placed tightly over the pin, so that it was held solidly and could not turn drilling. The exact measurement for the pin hole was therefore uniform, and drilling these holes on the bench vise was easily accomplished. Merely place in a pin, swing the steel cover over to hold pin while drilling, remove pin after drilling, and repeat.

A similar gadget can be fashioned for other drilling, where uniform placement of holes is necessary, such as in bobbins, bushings, sheaves, etc. (K-293)



Place U-shaped piece in vice to use.

Hook-Bending Tool Can Be Made Quickly

Sometimes it is necessary to make hooks of a different size or shape from those carried in stock. A handy tool for forming such hooks can be made from a piece of rod as illustrated.

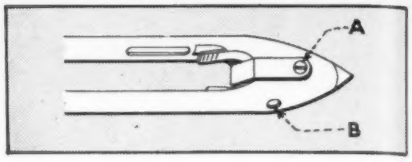
The diameter of the rod should be the same as the inside clearance of the hook desired, as shown at *d*. The space between the prongs of the bent rod *a* should be the same as the diameter of *b*.

To make a hook, *a* is secured in a vise and the rod or wire is inserted as shown. A half turn of the rod will form a perfect hook. (K-288)

Loose Shuttle Clips Are Packed With Paper

Here is a kink on automatic shuttles that I have used for some time. It deals with the bobbin clip, which quite often gets play in it, sways from side to side, and causes the bobbins to transfer before they are empty. This results in undue waste as the partly full bobbin will run off on the scavenger spindle under the magazine or otherwise be discarded.

Shuttles on their travel into the boxes will tend to get heated to some extent and cause the wood to shrink. The clip will then sway. As the feeler contacts it, the bobbin will be pushed away from the feeler. The feeler will ride on the slanted bobbin and cause a transfer.



Remove A and B so that filler can be put in back of clip.

I use ordinary scratch-pad paper folded over three times the width of the clip to form a loop which goes around the lower end of the clip on both sides. I push the assembled clip into shuttle groove and tap it with a chisel or small hammer into position, line up my holes with a drift, put the screw back in place, and tighten.

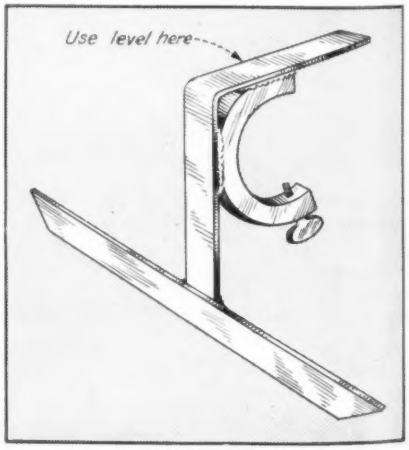
The fold of paper puts same amount of filler on both sides of clip, and it automatically centers itself. (K-279)

Gage for Setting Bat-Wing Type Shoe

To adjust the picking motion on bat-wing type looms, the first step necessary is to set the shoe in its proper position on the pick shaft. Ordinarily, most loom-fixers use their eye to judge this spot; others may use a plumb-bob. The eye method is none too accurate for this, and the plumb-bob method is much too dirty.

To make setting this shoe easier and more accurate, we made a gage out of a few odds and ends; a collar from a bottom shaft, a $\frac{1}{4}$-in. thumb screw, and a piece of drop-wire separator bar.

All mills do not place their shoes the same distance back of the bottom or drive shaft, but we set ours $\frac{3}{4}$ in. away and have very good results. After we



The gage is more accurate than the eye for setting loom shoes.

Fybrolize-and Stop Static!

IF static is complicating your mill procedure and hindering your production schedules, it will pay you to Fybrolize.

By using Fybrol processing oils, static, with all its troublesome and costly effects, is prevented. The anti-static property of Fybrol processing oils is laboratory-controlled to assure its retention and proper functioning throughout every stage of production.

Fybrol stays with the fibre and provides maximum lubricity throughout the run. As a result, spinning yields are increased, greater tensile strength is obtained, fly waste is substantially reduced and scouring is simplified.

Helping you to solve the problem of static is only one of the many ways a Sonneborn technical representative can assist you. Write or wire for this service today. No obligation, of course.

There is a specific type of Fybrol available for the processing of every kind of wool and worsted knitting and weaving yarn.

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Fybrol

WOOL and WORSTED Processing Oils

KINKS & SHORT-CUTS

(Continued from page 144)

know the distance we want the point of our shoe back of the shaft, we can go ahead.

First, take the collar and cut it as can be seen in the illustration. Then tap at the bottom for a ¼-in. thumb screw. Next, use piece of drop-wire separater bar 9½-in. long and bend to right angle at 4 in. This must be perfectly square. Use a small piece of bar 1-in. long for filler. Then make one piece 8-in. long for the indicator. Cut this to a point. We can now assemble the parts by welding or by pins.

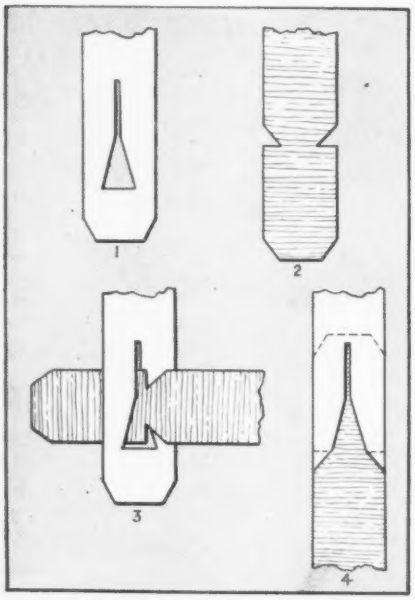
The combined thickness of collar, ⅜ in.; filler, ⅛ in.; right angle, ⅛ in.; and indicator, ⅛ in., gives the required ¾ in. we use for our setting. Any one desiring a different distance may add or subtract filler.

To use, place gage on the bottom shaft and use a small level on top of the right angle. (This level may be attached permanently or by a few rubber bands.) By leveling this right angle, it brings indicator in perfect alignment. Now tighten thumb screw and proceed to set the pick shoe point in line with the indicator. (K-257)

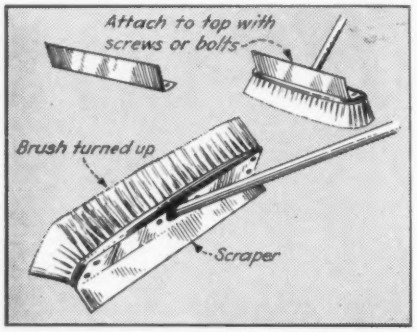
Splice Can Save Take-Up Roll Fillet

When fillet breaks near the end of the take-up roll, a splice will often save much time and material.

To make such a splice, one end of the fillet has a slot cut as shown in the drawing at 1, and the other piece is notched as in 2. The notched end is then inserted in the slot and both pieces of fillet pulled parallel as in 4. This completes the splice. (K-287)



This method can also be used for splicing many materials.



Angle iron scraper can be quickly fastened to push broom.

Metal Scraper on Broom Helps the Mill Sweeper

The sweeper's brush can be improved by placing a short strip of steel onto the back as shown. In textile plants certain spots are often not cleaned because the waste and lint is struck fast to the floor and is difficult to sweep up. A brush equipped with a steel blade, as shown, can be turned over and used as a scraper to loosen caked and sticking accumulations.

The blade is screwed or bolted to the back of the push broom. A strip of angle iron about ⅛-in. thick and of suitable length and width can be used. (K-290)

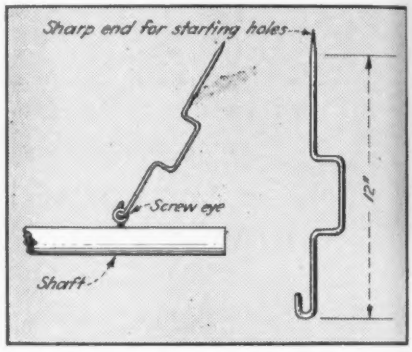
Guards Protect Ends From Oil Drippings

To protect the warp yarn from oil and dirt during weaving, a cardboard as shown in sketch 1 can be fastened to the dobby side of the loom. However, better and longer lasting protection is obtained by a metal enclosure of the shield and dobby, as shown in sketch 2. (K-269)

Harness Tool Made To Replace Eyes on Loom

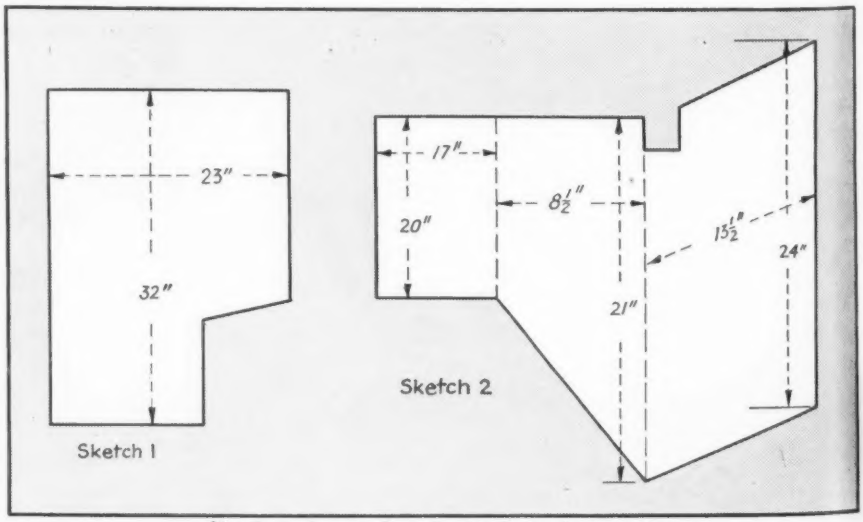
The tool shown in the sketch I have found to be excellent for use with harness screw eyes that must be replaced on the loom.

When an eye breaks, it must often be removed with pliers, unless it breaks off flush or below the wood. In this latter instance, a new hole must be punched and a new eye started. Start the hole as near to the old position as possible to keep the shaft equalized. After starting the eye by making a turn or two by hand, insert the end of the tool as shown and use it as a crank.

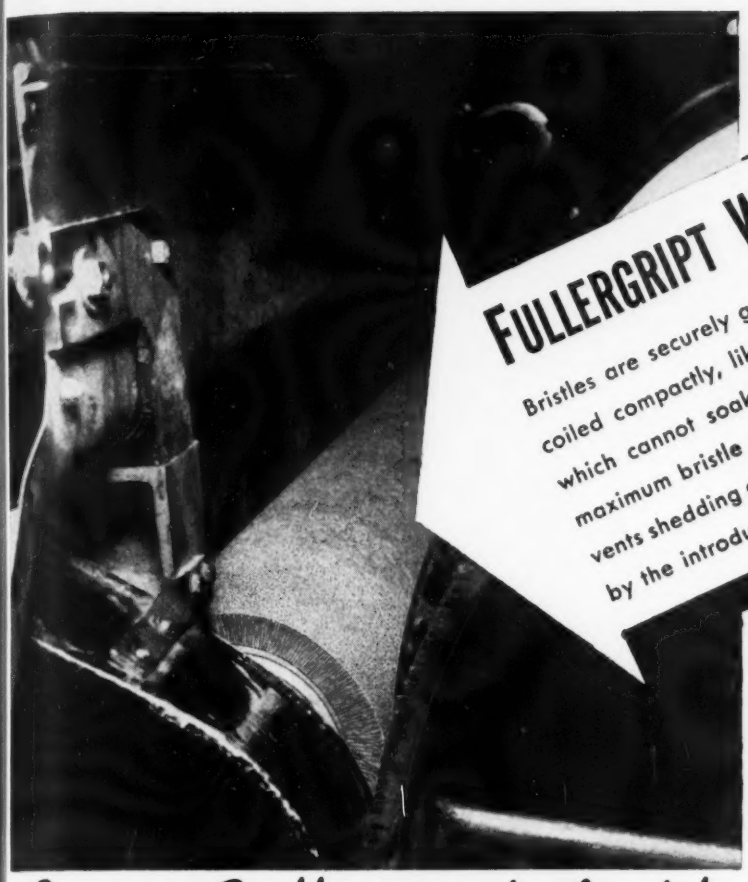


This tool is made from 3/16-in. round stock.

Using this new tool, fixers will find the eye can be cranked at an angle which will keep from tangling other shaft mounts and eyes. (K-282)



Sketch 1, for cardboard; sketch 2, sheet metal.



FULLERGRIPT WORSTED-CARD BRUSHES

Bristles are securely gript in rust resisting metal. This strip is then coiled compactly, like fillet card clothing, around a metal core, which cannot soak up oil, crack or split. This construction gives maximum bristle density, longest life and lowest cost; it also prevents shedding of bristles and the consequent ruining of good stock by the introduction of highly objectionable "foreign matter."

Again Fullergript Textile Brushes do a Better Job at Lower cost!

Here is a new success story — to add to the ones on Fullergript cotton-card brushes, Fullergript thread-dresser brushes, Fullergript dabbing brushes and other Fullergript textile brushes.

FULLERGRIPT WORSTED-CARD BRUSHES

contribute to this impressive demonstration. Its tightly packed bristles push the wool — all the wool — down into the pins of the Morel clothing, leaving the burrs on top of the pins, free of fiber, ready for easy removal.

Fullergript brushes are proving helpful in three ways on worsted cards — as feed-roll brushes to start the wool properly in the teeth of the first lickerin, as Morel brushes to disentangle the burrs from the wool, and as Morel transfer brushes to carry the wool to the Morel roll and disentangle the burrs at the same time.

In all these applications the great density of the Fullergript bristles insures that the wool will be pushed into the clothing — not back into the brush! This means the brushes will not clog up rapidly, lose their efficiency and require cleaning — always a difficult, time-consuming job.

YES, its a new success story. Do you want to hear the others — on cotton-card brushes, for example? If so, write us and we'll gladly relate them to you.

Do You Want To Remove Burrs?

Look at the quantities pouring out of this worsted-card in a prominent New England combing plant.

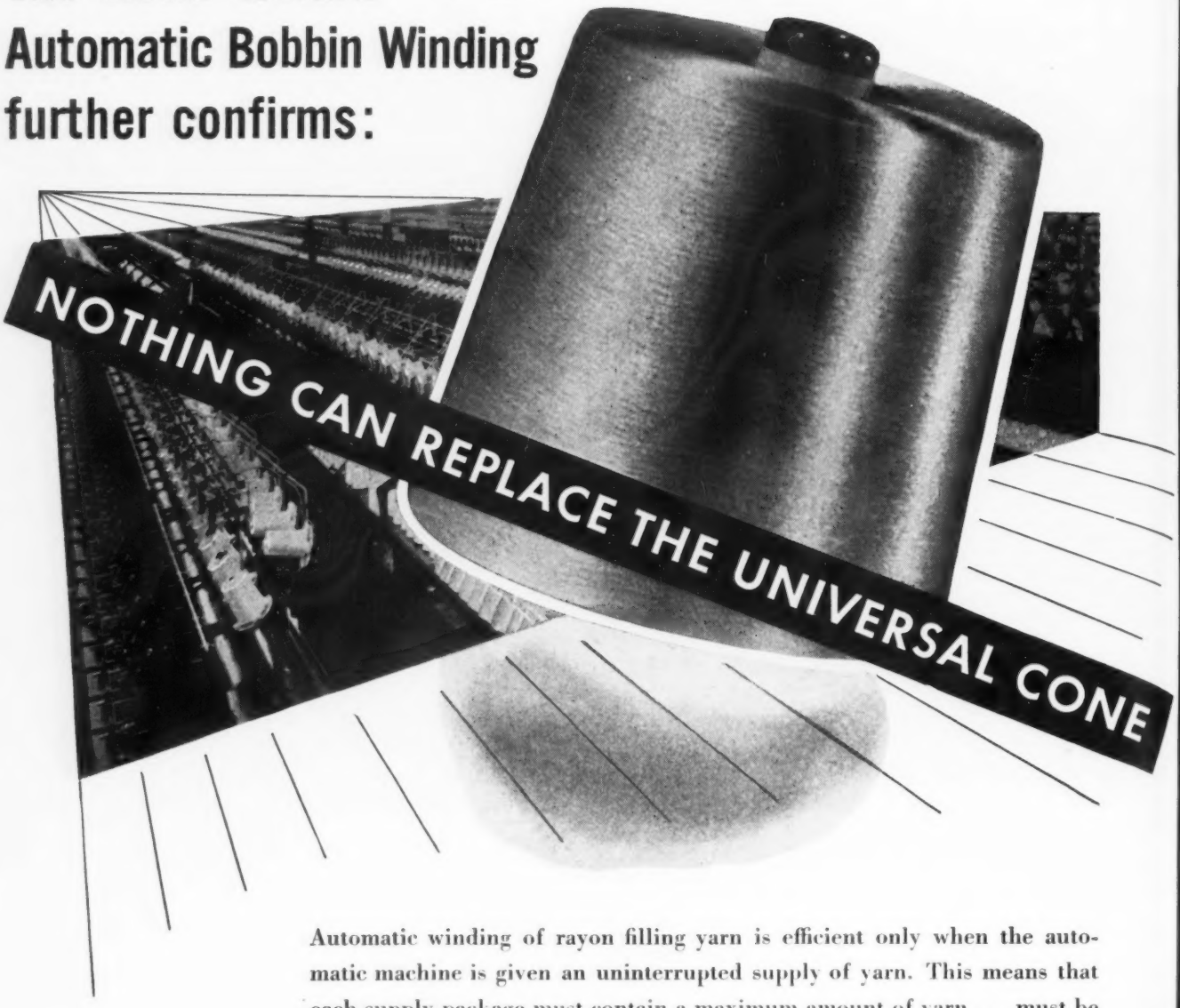
FULLERGRIPT — *better work at lower cost*

The FULLER BRUSH Company

INDUSTRIAL DIVISION, DEPT. 8C

3594 MAIN STREET - - - HARTFORD, CONN.

The trend toward Automatic Bobbin Winding further confirms:



Automatic winding of rayon filling yarn is efficient only when the automatic machine is given an uninterrupted supply of yarn. This means that each supply package must contain a maximum amount of yarn . . . must be magazined . . . and must contain yarn that is free from imperfections.

For many years, those requirements have been fulfilled most satisfactorily by the Universal Cone . . . a package of maximum traverse length and maximum diameter . . . that can be easily magazined for continuous supply . . . and that contains yarn automatically inspected during the winding.

Universal Winding Company, Providence, Boston, Philadelphia, Utica, Charlotte, Atlanta. See 10-page catalog in TEXTILE WORLD YEARBOOK.

LEESONA

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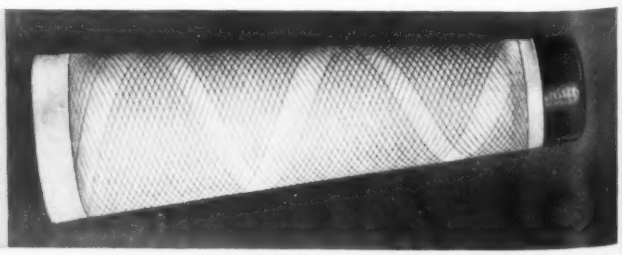
MORE THAN 90% OF ALL SYNTHETIC FILAMENT YARN ON CONES IS WOUND ON THE UNIVERSAL "PRECISION" WINDING MACHINE



LETTERS to Pete & Bill, discussing material in this department, are paid for when published. Suggestions for the Pete & Bill dialogue will also be paid for if used. If these pages interest you, contribute something to interest others. Address PETE & BILL, Textile World, 330 West 42nd St., New York 18, N. Y.

Pete & Bill

Overseer vs. Outsider as Teacher

Do you think an overseer should mix in the education of his workers, or should worker-education be handled by outsiders?

PETE, SOME OF MY EMPLOYEES WANT ME TO TAKE CHARGE OF THE NEW VOCATIONAL CLASS OVER AT THE SCHOOL. I BELIEVE I'LL DO IT.
DON'T DO IT, BILL. YOU DO A CERTAIN AMOUNT OF TEACHING ON THE JOB HERE ANYWAY, IF THAT'S WHAT YOU LIKE. BETTER LEAVE GENERAL UPGRADING INSTRUCTION TO THE STATE VOCATIONAL DIRECTOR AND HIS STAFF.
1
WELL, I CAN'T SEE ANY HARM IN MY TEACHING IF THE DIRECTOR APPROVES ME. I CAN DO A GOOD JOB ON SOME SUBJECTS, AND I LIKE TEACHING.
I KNOW BILL, BUT A LOT OF THESE PEOPLE SEE YOU EVERY DAY AT THE MILL. YOU MIGHT MAKE THEM SELF-CONSCIOUS, AND THEY CERTAINLY NEED A CHANGE FROM YOU. LET THEM GET THE OUT-SIDER'S FRESH VIEWPOINT.
2
OH, THEY'LL GET THAT FROM THE SUBJECT MATTER, PETE. I REALLY WANT TO TEACH BECAUSE I THINK I CAN GIVE THEM MORE PRACTICAL INFORMATION THAN AN OUTSIDER, AND ON SOME SUBJECTS I'D BE BRUSHING UP MY OWN KNOWLEDGE
YOU'D HAVE TO PUT A LOT OF TIME INTO IT, BILL, AND THE MOST IMPORTANT THING IS TO BE QUALIFIED TO TEACH.
3
OUR STATE VOCATIONAL STAFF AND THE T.W.I. FIELD WORKERS MAKE TEACHING THEIR PROFESSION. LET THEM HANDLE IT. WHAT SAY, JOE?
BOYS, I BELIEVE IN SPECIALIZATION, AND THINK MOST TEACHING SHOULD BE LEFT TO PROFESSIONALS. BILL HAS SOME GOOD POINTS THOUGH. WHAT DO YOU READERS SAY?
4

Letters From Readers

Mill Should Continue Training Its Workers

"Determining Employee Aptitudes"
(Pete & Bill, Nov., 1944)

Dear Pete & Bill:

An important question is whether mill management errs in hiring a worker on the basis of his past experience and present ability, and then makes no effort to increase his capabilities after hiring him.

Time is required to train a person for wider usefulness. It seems so much easier to have him do what he can already do, and let it go at that. Meanwhile, what is happening from the standpoint of expenses and over-staffing for the future?

Perhaps the problem of individual progress does not belong to mill management. Yet it might profitably be added to present and postwar planning, for it appears likely that the gradual reduction in unskilled workers will go far toward building up prestige for mill jobs.

The desire to advance is a strong human trait, and the mills would attract constantly better workers by providing definite methods for helping the ambitious ones along from the very start. (PB302)

Aptitude Tests Best for Worker and Job

"Determining Employee Aptitudes"
(Pete & Bill, Nov., 1944)

Dear Pete & Bill:

Great strides in aptitude testing have been made in recent years which more than justify its use. It is no longer necessary to rely on the fallible judgment of even the most experienced supervisor in selecting the most competent man for a particular job.

Proper selection will reduce the discontent among employees which has

MEMORIES OF OLD MAN CARELESSNESS—*By Martha B. Pittenger*

No. 26—
Don't Fence Me In.

Bill was the best weaver in the plant; always there at starting time, and stayed out of the red figures on the production sheet. I often watched him, and wondered how I could get him to line-up on my side. For a long time I almost gave up. I thought him much too wise to bother with an old pain-in-the-neck like me.

Then one day Bill had a toothache, and made an appointment with the dentist for five after two. This gave him just five minutes to get from his looms to the dental office.

I told him to take a short-cut out through the opening room. Save time, you know! Bill went sailing out past the opening machines—well almost past them. While putting on his coat as he ran, he got his arm caught in a moving belt. There he was, fenced in between two openers, with his right arm mangled in a belt. I guess he forgot about the toothache, but he remembers to stay clear of the opening room and not to take chances around belts.

Bill stayed fenced in at home for a month or so before his arm was usable. During that time the production sheet didn't look natural, nor did Bill feel natural. I did, because I thrive when folks forget to remember to be careful.

been engendered by improper placement. Furthermore, it will eliminate the economic losses from high turnover, which include the costs of hiring, instruction, wear and tear, reduced production, and spoiled work. It has been estimated that the cost of all these items for the average worker is $45.

There are wide differences in the abilities of workers. An employee may fail at one job and be successful at another. Only through objective aptitude tests is it possible to use a worker's full capabilities. (PB301)

Let Employee Rate Himself

"Rating Employees"
(Pete & Bill, May, 1944)

Dear Pete & Bill:

"Self-analysis" sounds like a big word to apply to mill workers, and particularly to the unskilled ones.

Analyze workers and hand them the results, and you have likely caused only hard feelings. Give them individual lists of the desired qualifications for their positions, allow them to judge themselves by those standards, and, in discovering their own weak points, they also find the challenge to better themselves.

We don't suggest collecting the lists; let the workers keep them for comparisons against the same standards six months later.

We have seen considerable interest created by a general list of good points to check, and believe the application of the same principles to specific tasks in the mill would be most worth while. *(PB205)*

Books of Interest

Maintenance of Air Compressors

AIR COMPRESSORS, by Eugene W. Feller; McGraw-Hill Book Co., 330 West 42nd St., New York 18; 445 pages; $4.50.

This "how-to-do" book describes the general features of the different classes of compressors, and covers details on how to install them and how to keep them in operation through an aggressive maintenance program. Maintenance of reciprocating compressors, the type most commonly found in textile mills, ranging from repair of leaking valves to the making of piston rings by the engineer, is an example of material contained.

Study of Latin American Markets

ECONOMIC PROBLEMS OF LATIN AMERICA, edited by Seymour E. Harris; McGraw-Hill Book Co., 330 West 42nd St., New York 18; $4.00; 454 pages.

Textile mills interested in developing exports will do well to review this book, as economic information on Latin America is not easily obtainable. Most of the contributors to the 18 chapters in this book are or have been government employees involved in making studies of the countries involved.

The first part of the book is devoted to studies of major issues, price stabilization programs, central banking exchanges and prices; and the latter portions are devoted to studies of each of the important Latin-American countries.

Other Publications

HOW TO PREPARE YOUR 1944 INCOME AND EXCESS PROFITS TAX RETURNS; The Research Institute of America, Inc., 292 Madison Ave., New York 17; 91 pages.

ECONOMIC RESEARCH AND THE NEEDS OF THE TIMES, by Wesley C. Mitchell; National Bureau of Economic Research, Inc., 1819 Broadway, New York 23; 66 pages.

HIGH FREQUENCY INDUCTION HEATING, by Frank W. Curtis; McGraw-Hill Book Co., 330 West 42nd St., New York 18; 231 pages; $2.75.

THE THINKING CITIZEN AND THE POSTWAR WORLD, by Ralph Barton Perry; New England Council, Statler Bldg., Boston, Mass.; 8 pages.

CARPET AND RUG REPAIRS; Farmers' Bulletin No. 1960; U. S. Department of Agriculture, Washington, D. C.; 16 pages.

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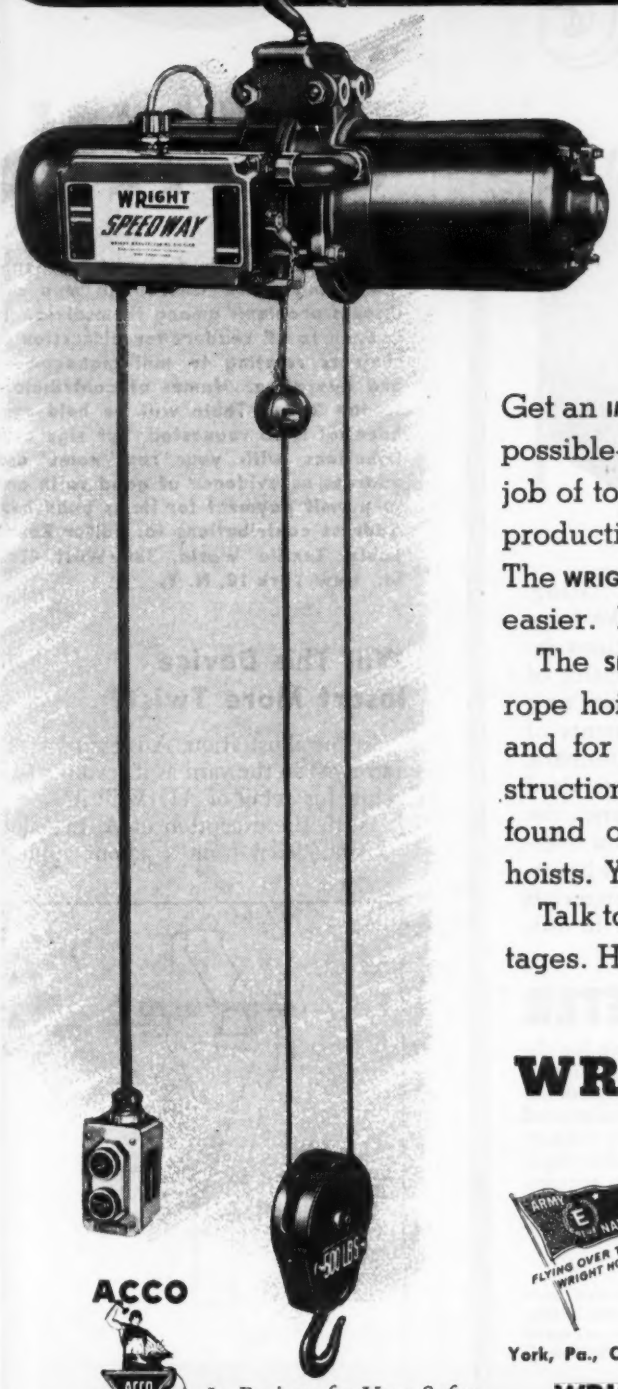

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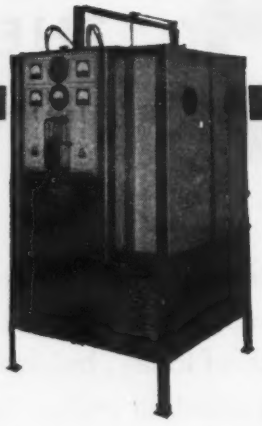

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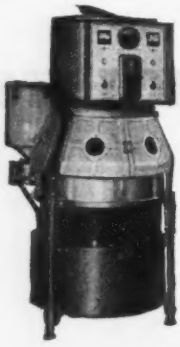

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Round Table

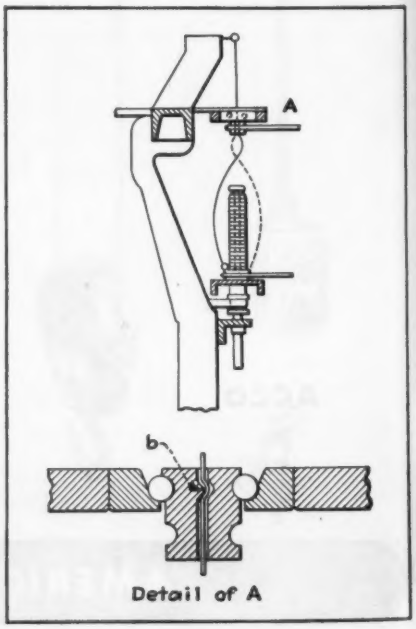
FOR EXCHANGE OF IDEAS

The Round Table is designed to supply a meeting place where mill men can discuss problems among themselves. It is open to all readers for discussion of subjects relating to mill management and operation. Names of contributors to the Round Table will be held confidential if so requested, but sign contributions with your real name and address as evidence of good faith and to permit payment for items published. Address contributions to: Editor Round Table, Textile World, 330 West 42nd St., New York 18, N. Y.

Will This Device Insert More Twist?

In the illustration, A is supposed to add twist in the yarn as it revolves (see below for detail of A). Will it?

With the exception of A, the illustration (taken from a patent applica-



Detail of A

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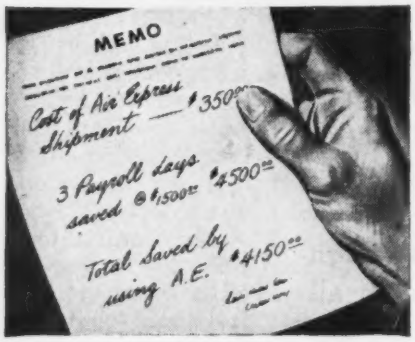
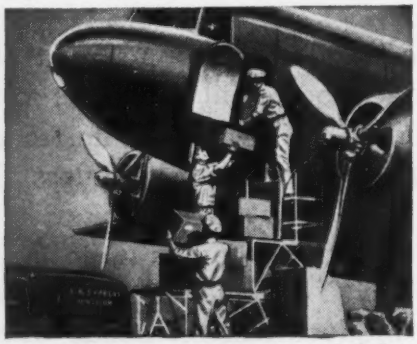
Air Express Gains 3 Days, Saves $4,150

A PLANT in California faces a shut-down for want of critical equipment made in New Jersey. Figuring a loss of $1,500 for every day his plant is idle, the president picks up a phone and orders the equipment sent Air Express, even though the shipment is sizeable. (When time means money, Air Express pays—always!)



THE COST? Higher, yes. But by air, coast-to-coast delivery is made *overnight*—rather than in 3 or more days by other means. Air Express cost, by the way, includes special pick-up and delivery.



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tion drawing) can be considered to be a conventional spinning spindle unit. It differs only to the extent of having a special revolving unit which is supposed to twist the yarn in addition to the twist inserted the normal way.

The device is called a rotating guide and should revolve in the opposite direction from the spindle. The offset *b* is designed to hold the yarn as twist is inserted. Of course, the running end constantly moves through the rotating guide. For similar devices it has been claimed that for each revolution of the device, two turns of twist are imparted without the trouble of rotating a relatively heavy package. Is that possible?

(This department will publish the best answers received concerning this device and will pay on acceptance for all usable replies. Address your replies to Editor, Round Table.) *(R-118)*

Special Crew Suggested For Keeping Mill Clean

In answering *R-105* (Jan. RT), I would say that a mill with 25,000 spindles and 218 looms could be kept in better condition if a special cleaning brigade were organized and made the responsibility of one man who would rate about as a second-hand.

A schedule could be worked out, and the cleaning crew brought up to the proper strength to give attention to each item when and as required. We know of this having been done successfully, and the management is quite proud of the better housekeeping which resulted.

Cleaning of floors, walls, ceilings, windows, lights, and machinery is all included in the program.

It might be well to investigate a floor-scrubbing crew as a possible manpower saving. *(R-110)*

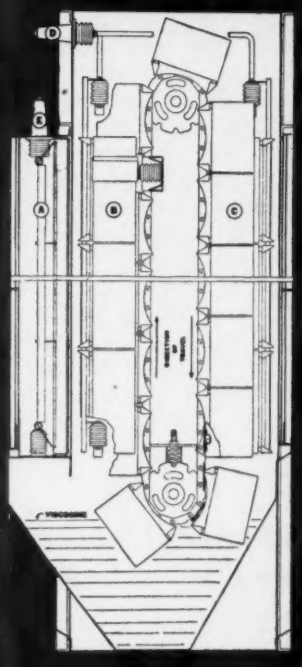
Revolving Ring Idea Compared to Cap Spinning

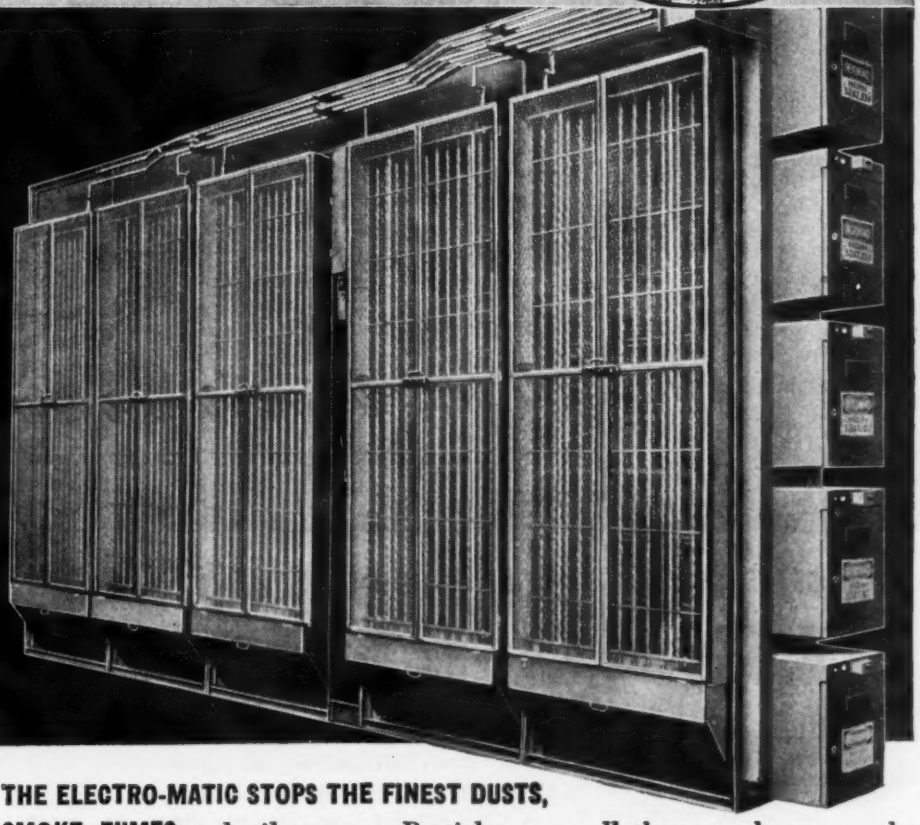
On page 142 of January TEXTILE WORLD a Mr. Shore has something to say, and more to ask, about revolving spinning rings. This takes one back to the days of the "Belanger revolving spinning ring."

I was much interested in this, through my connection with Mr. Belanger and his "Cap Spinning," as no ring or traveler was required. I also have taken out quite a number of patents on similar devices.

The revolving ring did not prove to be a success; what value it did have

Super Clean Air





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was its flexibility. It would help to take some of the strain off the yarn should the drag on the traveler be too great. This element was not enough to make it of much value. In trying to visualize an apparatus capable of driving the ring, I, for one, can readily see many disadvantages to anything of that nature. Then again there are so many other things which are of a more serious nature (other than the ring) which prevent an increase in the speed of the spindle. *(R-117)*

Gum for Sizing Is Starch Derivative

We have read with much interest the article by T. O. Ott, Jr., your Southern Editor, entitled "Spun-Rayon Sizing," appearing in the January, 1945, issue of TEXTILE WORLD.

Mr. Ott mentions "gum" in his formula and we would like to know just what is meant by that word. *(R-123)*

("Gum" as used in this article refers to the more highly soluble starch derivatives sold under a great many different trade names. Natural gums were not meant although they are sometimes used in small quantities as binders. *Ed.*)

"Manufactured Fibers" Claimed Suitable Name

I wish to refer to a letter from a reader *R-98* on the subject "Rayon Terminology is Called Confusing", page 146 of TEXTILE WORLD, January, 1945.

The letter indicates that most of the confusion is in the mind of the writer. In paragraph 2 he states that the Federal Trade Commission rules that all fibers with a cellulosic base are rayon. In the next paragraph he states that the Federal Trade Commission ruled that rayon was a generic term for all synthetics.

The word is clearly defined by the American Society for Testing Materials, and this particular writer seems to be confused in the Federal Trade Commission's interpretation of the definition of ASTM which they themselves adopted many years ago, and again promulgated in the rayon rules of 1937.

I see no need for a newly coined word to cover all manufactured fibers any more than a coined word to cover all natural fibers. Manufactured fibers are subject to as many subdivisions as are natural fibers, and the use of an

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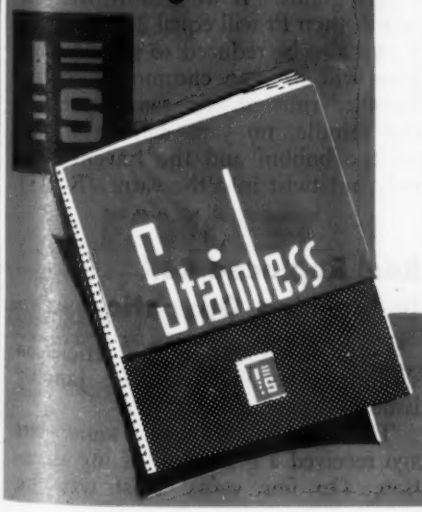
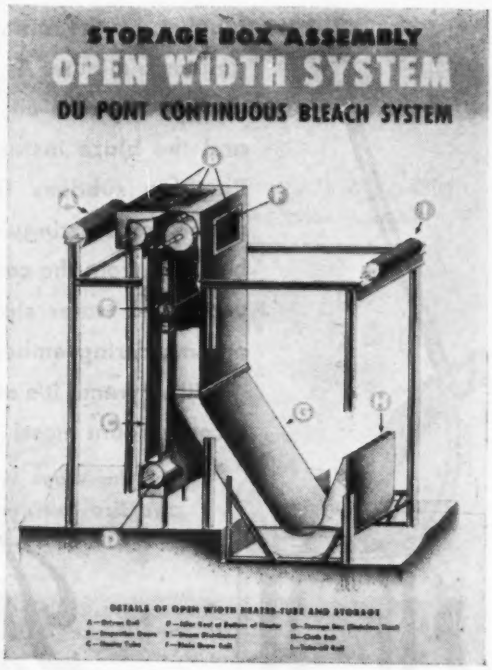


For many years the goal of Textile Chemists has been to develop a satisfactory process and equipment for continuous bleaching of cotton fabrics. The enthusiasm of the Riverside and Dan River Cotton Mills (Danville, Va.) for the results obtained by their continuous open-width process is evidence that the goal has at last been attained. Developed by Du Pont, the STAINLESS equipment shown in red was fabricated by Greenville Steel and Foundry Co., Greenville, S. C., an experienced fabricator of stainless steel equipment. Greenville Steel and Foundry Company used INDUSTRIAL Stainless Steels for these units, where CORROSION RESISTANCE is of vital importance, and results have been 100% satisfactory.



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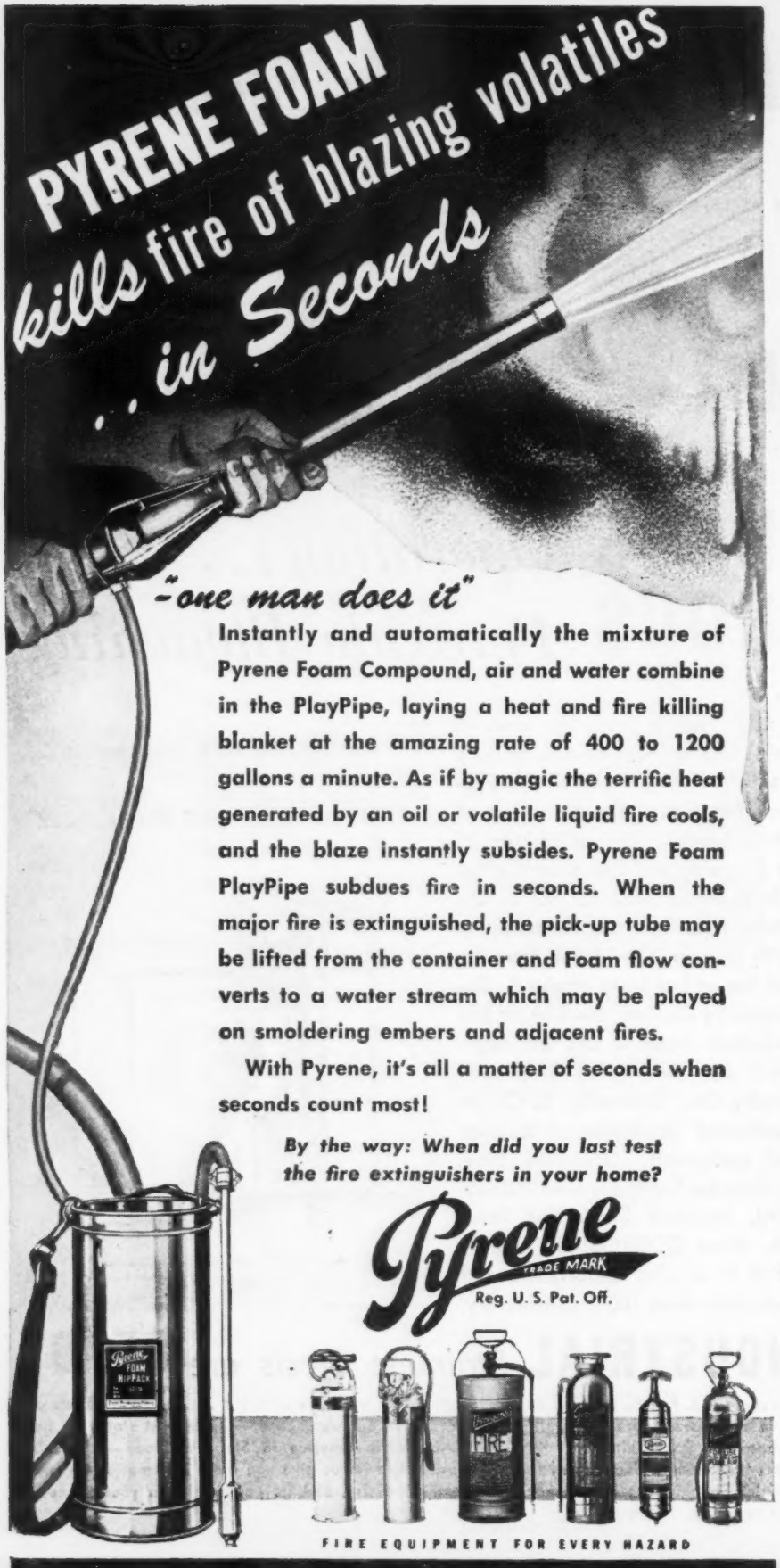
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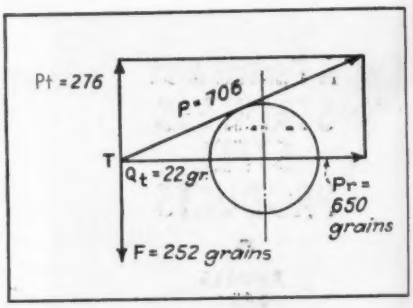
overall newly coined word will not relieve anyone of the responsibility for describing the particular fiber or class of fiber in question. *(R-119)*

Revolving Spinning Ring Alters Resistance Factors

In regard to the revolving spinning ring in January Round Table, the designer apparently is trying to get rid of the friction between the traveller and the ring which is absolutely necessary to reduce the diameter of the balloon.

Let us assume that we are making yarn on a ring of which the diameter of the circle where the center of the traveller is 1 3/32 in., the weight of the traveller is 1.4 grains, the spindle speed is 8,800 r.p.m., the actual count of the yarn is 10.77s, and the diameter of the bobbin is .577 in.



Above is shown a plain view with the bobbin barrel in the center, *T* is the traveller, and *P* is 706 grains which is the tension in the yarn being wound on the bare barrel. *Pr* is 650 grains which tends to overcome part of the centrifugal force of the traveller which is 2225 grains. *Pt* is 276 grains and must equal the sum of *Qt*—22grains which is the air resistance of the ballooning yarn, the air resistance of the traveller (2 grains), and the friction between the traveller and ring, which is 252 grains. If we remove the friction *F* then *Pt* will equal 24 grains and *P* will also be reduced so that the balloon will become enormous. If the traveller runs at the same speed as the spindle, no yarn will be wound on the bobbin and the traveller will only put twist into the yarn. *(R-115)*

Reel Replaced Roll In Slashing Operation

I was interested in the article on slashing spun rayon in the January issue of TEXTILE WORLD.

This is an operation that some years ago received a great deal of my attention. On fine yarns, twist was the

You can be realistic about a statistic...

take our 3 million lady friends

More than 3,100,000 women buy True Confessions, Motion Picture and Movie Story every month.

Buy these Fawcett Women's Group magazines, mind you . . . pick them out at their newsstands and take them home, because they want to read and own magazines that help them live and enjoy living.

These are impressive female statistics. But to be realistic, they don't matter most. We are not shouting about them.

What's important is not that these millions buy, but *why* they buy every month.

What's *in* the Fawcett Women's Group magazines? Why are they snapped up from the newsstands sensationally, month after month?

They sell because they give service.

Magazines are a lot like people. Some of them remain only acquaintances. Some of them are friends that women rely on. They rely on the Fawcett Women's Group.

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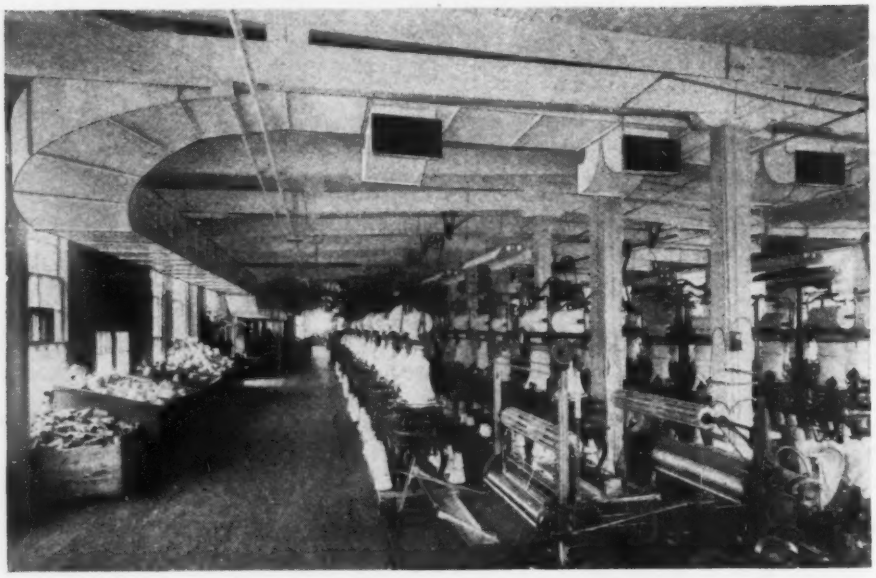
World's Largest Publishers of Monthly Magazines

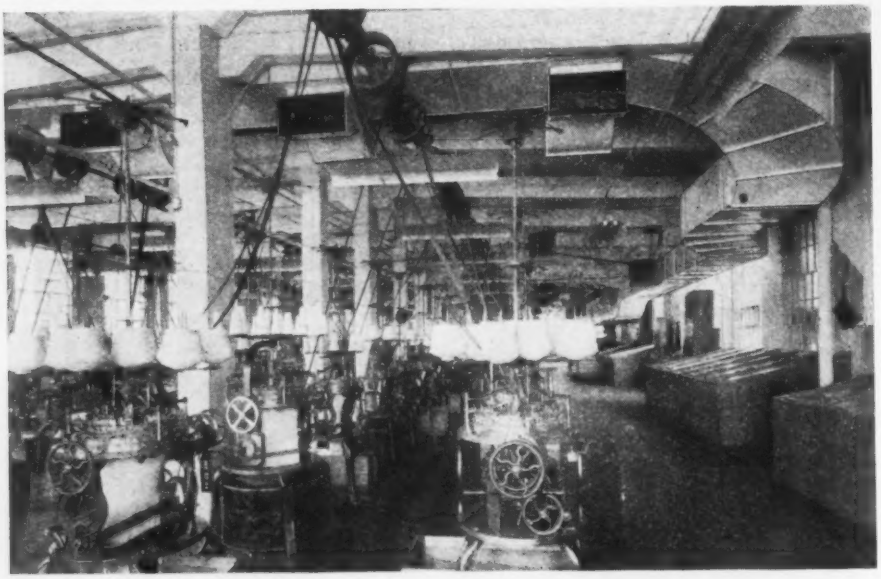
FAWCETT
WOMEN'S GROUP

Production Goes Up — "Seconds" Go Down

Bahnson Central Station in Knitting Mill



Bahnson engineers by bringing direct duct distribution of air to the center of the alleys developed a practical solution to a problem made difficult by the height of machinery and interfering beams.



Production went up and "seconds" decreased when Bahnson Central Station Air Conditioning System was installed in this knitting mill.

With all windows closed this Bahnson installation maintains 55% relative humidity and a comfortable room temperature.

Bahnson System
AIR CONDITIONING ENGINEERS
THE BAHNSON CO. WINSTON-SALEM, N. C.

886 Drewry St. Atlanta, Ga. | 93 Worth St. New York City | 703 Embree Crescent Westfield, N. J. | 976 W. 6th St. Los Angeles, Cal. | W. J. Westaway Co., Ltd. Hamilton, Ontario

factor which had to be considered, largely because it prevented the sizing compound from penetrating the yarn. Remarks as to the percent of roll surface that was in use reminded me of a change we thought to be of value. We changed the size box to receive a 9-in. diameter immersion roll and it helped. But in later years, having seen what some others were doing, I did not think so much of it. We wanted the size to penetrate the yarn while it was in contact with the immersion roll, but that was difficult to achieve.

I saw many mills on the Continent and in Japan, where the roll was dispensed with; in its place a reel was used. By the use of that, the sizing mixture was around the yarn all the time it was passing through the size mixture.

On the strength of my recommendation, some mills in New England changed to that form of roll. I do not know of any of them which regretted having made the change. *(R-116)*

Orchid from Reader

I have intended for some time to write you a long congratulatory letter about your publication. For the last several months, I think it has been the best publication we receive on textiles.

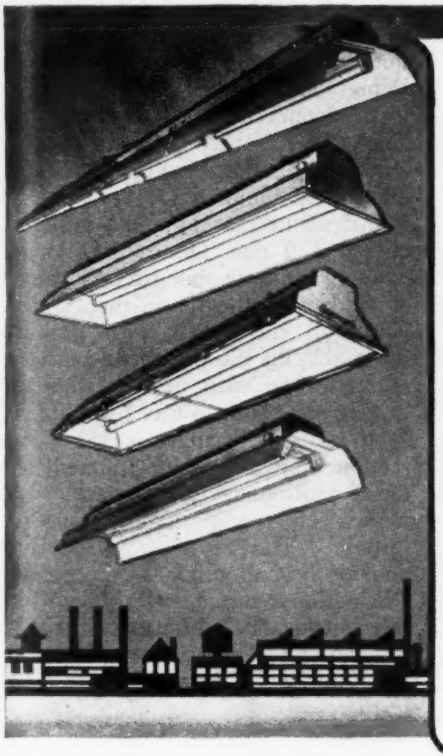
I don't know how you did it but please consider this a very large orchid from one of your subscribers. *(R-92)*

Shuttle Life Increased In Large Rayon Mill

For seven years, I was the reed-repair man in a large mill that was changing over from cotton to rayon. As new high-speed looms were introduced, I found that the mortality rate for shuttles and reeds was very high. Shuttles would become "washboardy" and would last only about three months. Reed dents broke out so fast that my entire work week was used up repairing them.

At that time, I could not believe sharp reeds were causing this condition but placed the blame on faulty reed alignment, which was the loom-fixers' job to correct. About this time we borrowed another mill's idea to correct this situation; we ran a shuttle with crocus cloth glued to its face across the reed for about a half hour at the start of a new warp. This helped considerably; it reduced the reed sharpness and thereby partly eliminated the washboardy shuttle so that the average life of the shuttle went up to about

How "RIGHT" Lighting Helps CONSERVE MANPOWER



In these 3 Ways...

"RIGHT" LIGHTING as provided by properly applied Benjamin Lighting Equipment is helping Industry to meet today's pressing manpower problems...

1. Protects plant personnel against accidents.

2. Conserves energy and reduces fatigue.

3. Helps older employees to "Stay-on-the-Job"

PROMOTES SAFETY. The influx of new, inexperienced men and women, many of whom are unaccustomed to industrial occupations and the increase in the average age of the working force accentuates need for maximum accident protection. Further, demands for sustained, high speed production and day and night shifts have increased the *problem of fatigue* as a cause of accidents.

"RIGHT" Lighting is helping in the solution of this aggravated Safety problem in two ways. First, enough light enables the individual to *see hazards easier and more quickly*.° It takes time to see*. The more light, however, the less the time required to see and to act*. The more light, therefore, the fewer accidents!°

Further, "Right" Lighting makes *seeing easier and less tiring*. To secure such lighting requires attention to many details such as the elimination of unshielded or improperly shielded light sources, proper painting of walls, ceilings, machines and working surfaces, and provisions for uniform distribution of the light over the work areas. These and other factors help to increase visibility and thus minimize eyestrain and fatigue*, the enemies of alertness against accidents.

**from I.E.S. report "Value of Good Lighting in War Production"*
°from booklet "Plant Efficiency" published by War Production Board

COMBATS FATIGUE. Not only is fatigue the cause of accidents, but also, an important factor in rate and quality of production, absenteeism, health and morale. "Right" Lighting helps solve the fatigue problem by reducing the drain on the worker's reserve energy. For seeing requires energy!* The better the lighting, the less the drain!*

KEEPS OLDER MEN ON JOB! "Right" Lighting benefits the older employee and those with deficient vision of all ages even more than those with normal vision. More light helps compensate for visual deficiencies and the loss of visual acuity due to age. Given this additional light, the manpower represented by this large group can be efficiently utilized for war production.°

• • •

Write for Free Booklet entitled "Productive Lighting" containing much valuable information on how Benjamin Lighting Equipment enables you to obtain "Right" Lighting for your plant. With it will be sent complete information on how to obtain, without cost or obligation, the assistance of a Benjamin Trained Lighting Specialist in analyzing the performance of your lighting and in making recommendations.

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Lighting Equipment

Distributed Exclusively Through Electrical Wholesalers

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OUT OUR WAY

I DON'T THINK IT'S REALLY BUSTED--TH' SKIN AIN'T EVEN BROKEN!
WELL, IT SURE FEELS LIKE I BROKE IT! I TOOK A MEAN FALL, AND BESIDES...
GUESS THE BASS MUST BE BITIN' UP TO THE LAKE-- HE'S BEEN PULLIN' THAT FAKE SLIPPIN' ACT EVER SINCE I CAN REMEMBER! ALWAYS JUST ABOUT THIS TIME O' YEAR, TOO!
YEAH, BUT HE CAN'T FALL GOOD NOW, EVEN WHEN HE TRIES--THAT SPEEDI-DRI HAS MADE OUR FLOORS NON-SKID!
J.R. WILLIAMS
THE CHARMED LIFE
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SPEEDI-DRI prevents slips and falls, eliminates the hazard of fast-spreading fires. It is thirsty for industrial oils and solvents, blots up oil or grease safely and inexpensively, not only from on top but out of the pores of concrete, composition, or wood floors.

SPEEDI-DRI is easy to apply, requires no expensive, complicated machines. Simply spread on the floor. A sure, non-skid surface results. Floors are desert-dry when swept clean.

Oily floors invite fire and accidents. That is why insurance companies recommend SPEEDI-DRI. Employees are enthusiastic, too. Send for free samples today . . . SPEEDI-DRI for regular, industrial oils and greases . . . SOL-SPEEDI-DRI (an all-purpose product) for solvents, acids, coolants, resins, and syrups as well as oils and greases.

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West Coast — Waverly Petroleum Products Co., Russ Bldg., San Francisco 4, Calif.

SPEEDI-DRI
OIL AND GREASE ABSORBENT

"Think First—Stop Accidents"

four months, and there were fewer broken reed dents.

This didn't satisfy us, so I experimented with an automatic belt sander to smooth the reeds when out of the loom. The mill purchased one of these machines, and we had belts made up of abrasive cloth similar in fineness to crocus cloth. These belts and the machine polished the reed-dent edges to a plate-glass smoothness and did not leave sharp or squared edges. When these polished reeds were placed in the looms, the results were remarkable—the shuttles stayed smooth, weekly production went up, and broken dents were eliminated.

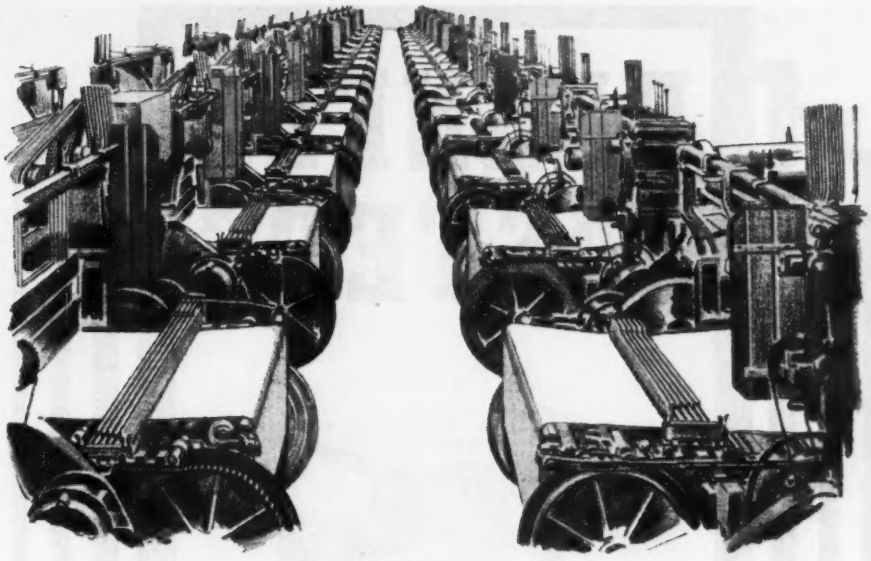
Just about that time the mill purchased 120 new Draper XD looms. They gave me a wonderful opportunity to work with the set-up men and to equip all the looms with polished reeds. With all the reeds lined up perfectly and with new shuttles and leather box plates in use, I was able to keep a highly accurate record. This section started up and immediately ran a continuous 138-hr. week. The looms were running at 174 picks per minute. The results were startling and far beyond original expectations. Production averaged close to 95%, the shuttle faces did not even lose their original coats of varnish, the reeds stood up without breakage, and the leather on the box plates stayed smooth.

Two years later, over 50% of the original shuttles were still running in these looms. I did not find one that was taken out for being worn, although some had been destroyed by many other causes. The records I kept showed an average shuttle life for that 120-loom section (operating on a 138-hr. work-week) of 18 months. I do not believe that record has ever been duplicated in any mill in this country.

Bear in mind that two sets of conditions prevailed. On one group of looms, corrective measures were applied; on the other, preventive.

For over two years, every reed placed in the looms throughout the mill was polished; and after that length of time, the overall shuttle-life average increased from four months to eleven months. In other words, a mill of 1,300 looms instead of using 3,900 shuttles per year would have been using only 1,400—a saving of around 2,500 shuttles per year, together with higher production and a countless reduction in broken reeds. The accumulated savings on such a basis would probably be $10,000 in one year. *(R-114)*

Magnesium brings stability and balance to your machines



cuts inertia— steps up speed— in moving parts

It's *speed* you want in textile operations—but not speed alone. Magnesium machine parts give you *dependable* high speeds . . . because they have lightness and also that important quality known as dimensional stability.

That simply means magnesium has just about licked the problem of distortion . . . of permanent growth and contraction . . . common to some non-metallic parts chosen for their lightness. Magnesium alloy parts are entirely comparable in weight—and much stronger.

It all adds up to dynamic balance, essential to high-speed operations.

Inertia-cutting magnesium is particularly useful in rotating machine parts that continually start and stop . . . in parts with high-speed reciprocating motions . . . and many others where high inertia means added wear and tear.

There's real economy and better production coming your way if you use machinery that contains magnesium. The nearest Dow office can give you full details.

DOWMETAL

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THE METAL OF MOTION

MAGNESIUM DIVISION, THE DOW CHEMICAL COMPANY, MIDLAND, MICHIGAN

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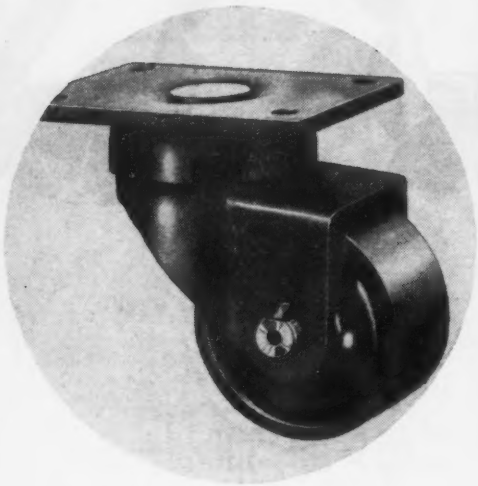
DARNELL CASTERS



these low-cost floor protection products have been made to give you a long life of efficient, trouble-free service.

FREE MANUAL

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Questions and Answers

Dermatitis from Wool

Technical Editor:

Can you advise us concerning some trouble with skin infections or dermatitis which we are having in our wool-mixing room? Most of the wool we are blending is new wool which has been carbonized and scoured before it reaches our mill.

The workers handle the raw stock consisting of wool, cotton, rayon, and some other fibers from the bales. Handling occurs at the mixing bins and at the carding machines. Recently, the workers have been affected with skin irritations on the hands and arms and, in some cases, on their face and neck.

An emulsion with a mineral oil base is used on this stock as it passes through the mixing machines. This oil is the same brand that we have used for many years without complaints.

Do you think there would be a likelihood of irritants being present in the raw wool? Have you knowledge of other complaints of a similar nature? (9030)

Cases of a nature similar to that which you mentioned have not been drawn to our attention. Undoubtedly the best way of checking to learn if such complaints are prevalent, is through your state health authority.

Your inquiry did not state whether cases of dermatitis occurred to practically all the workers handling cloth or if it occurred to only an isolated few. If practically all workers have contracted such infections, it is advisable immediately to communicate with the State Health Department.

Isolated cases of dermatitis are usually caused by individual sensitiveness to a particular substance which is harmless to most people. The offending substance may be a food or some material with which the worker comes in contact in his daily job.

The best way to find out if this particular case is being caused by the work is to transfer the worker to another job where he no longer comes in contact with the material he has been handling. If the condition clears up entirely the chances are that he is allergic to something handled on the

TEXTILE BANKING COMPANY

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Strengthens your cash position
Relieves you of credit losses

55 MADISON AVENUE • NEW YORK

● *Fig. 16 — Bronze "RENEWO" GLOBE*

● At every step in manufacture, *Quality is the watchword at Lunkenheimer . . .*

Quality you can see in every line of a Lunkenheimer valve . . . plus *built-in* quality that reveals itself in top performance and longer service life when these finer-made valves are put to work.

Simplicity of design, correct proportions and perfect balance of all parts, reduce maintenance costs to a very minimum.

On every industrial front, Lunkenheimer Valves are proving their exceptional staying qualities.

A Lunkenheimer Distributor is located near you, ready at all times to assist with your maintenance and operating problems.

● *Fig. 2125— 125-lb. S. P. Bronze Gate, Double Disc, Rising Stem*

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THE LUNKENHEIMER CO.
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BRONZE, IRON, STEEL AND CORROSION RESISTANT ALLOY VALVES, 125 TO 2500 LB. S. P.; BOILER MOUNTINGS, LUBRICATING DEVICES, AIRCRAFT FITTINGS

original job. This can be checked by transferring him to his original job to see if the irritation reappears.

If, on the other hand, when a number of workers in the same room have contracted dermatitis, it is quite possible that an industrial hazard is present and steps should be taken to remove such trouble.

In some cases, a specific oil or chemical may not be to blame as much as conditions in the factory, such as excessive contamination in the air. Such conditions might be prevalent in the case of handling extremely low-grade wool. If such is the case, ventilation of the room should be considered. It may be possible through the use of fans to clear the atmosphere and thus clear up the condition.

It is quite possible that you will want to make tests with the wool oil or some of the other items which you may suspect to be the cause of the skin infection. This test may be easily conducted; it consists of placing a portion or a sample of the suspected material in contact with the skin. For example, if a particular type of wool is expected to cause the irritation, a small sample of this wool should be attached to the arm by a piece of adhesive tape, and left in contact with the arm for about 24 hr. If at the end of this period the skin shows a rash condition when the sample is removed, you may be certain that the worker is allergic to that particular type of material and should be transferred to another type of work.

In the case of wool oil, this may be easily handled by saturating a piece of absorbent cotton with the oil and attaching the absorbent cotton to the arm with adhesive tape. It may be possible by using such tests, to determine the cause of the skin infection.

There are precautions that may be taken which will assist in clearing up this condition. For example, it is quite important that the employee be given a chance to clean up properly. Clean washrooms should be provided, equipped with plenty of hot and cold water and mild soap. Then workers should be shown how to wash properly. Most skin rashes occur in hot, humid weather; on such days it may be advisable to have a brief recess in the middle of the morning and the middle of the afternoon and have the workers wash.

It is also important that the air be kept relatively free from dust, lint, and objectionable odors. This is especially important on rainy days. Electric fans should be placed at various

For Five Generations a Part of the American Scene

★ ★ ★

How CHENEY BROTHERS Contributes to the Most Scientific War in Our History

Never before has America fought so technical a war as World War II. Weapons and supplies are vital, equipment must be planned down to the last detail.

And nowhere is scientific planning more necessary than in the *fabrics* of war.

Cheney Brothers are now concentrating on the production of these wartime fabrics. With over 107 years of textile manufacturing behind us—plus the experience of four previous wars—we are making fabrics that are engineered for specific military purposes.

Parachute cloth, jungle nets, cloth for tow targets—these and many other very highly specialized products that have been developed by collaboration between Cheney technicians, the technicians of foremost yarn producers, and Army experts.

This cooperation—this typically American cooperation—helps to keep our fighting men supplied with the tools for Victory.

And the skill and experience which Cheney Brothers devote to today's war production is paving the way for tomorrow's peacetime developments. Improved methods, new materials, finer fabrics—all these will be available in the years to come.

Meanwhile loyal Americans everywhere fight for Victory by buying more—and still more—War Bonds.

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MILLS AT MANCHESTER, CONN.

ALSO AT MANCHESTER, CONNECTICUT, A SUBSIDIARY...PIONEER PARACHUTE COMPANY

DOLLARS SCRUBBED RIGHT INTO THE WOOD!

Outmoded scrubbing and wet mopping absorbs dollars by requiring *more* time for floor cleaning, *increasing* floor replacement and repair and actually *hindering* mill production by causing dark, fuzzy, slippery floor surfaces.

The Tennant System *can* stop these wastes. Floors are "dry cleaned" by the burnishing action of steel wool which polishes dirt and grime from the floor surface. Soilage is picked up in the *same operation*. Floors are left clean, hard, non-slippery and wear-resistant.

The Tennant System *can* reduce your floor cleaning costs as much as 50%. Floor replacement and repairs (often caused by scrubbing) is reduced to a minimum as water is entirely eliminated. Tennant's "dry cleaning" method of floor maintenance results in good, sound, hard floors. It conditions and preserves flooring and makes mill trucking easy and walking safe.

WRITE FOR
Tennant's new book "Your Floors Are Important to Your Mill's Production."

Where Mill Floors Gleam Mill Profits Grow

The way to finer floors
TENNANT
Floor Maintenance System

G. H. TENNANT CO.
2586 North 2nd Street
Minneapolis, Minnesota

points so as to keep the dust and lint from blowing towards the worker. Then a thorough cleaning of the room and equipment should occur every night so as to remove whatever lint had collected during the day.

For minor skin irritations it is often well to provide a protective sleeve or covering for the affected part. Have workers wash the affected area several times daily with a mild sulphonated oil soap. Then treat the affected part with a bland ointment or lotion, such as boric acid lotion.

Oxidation in Wool Fabrics

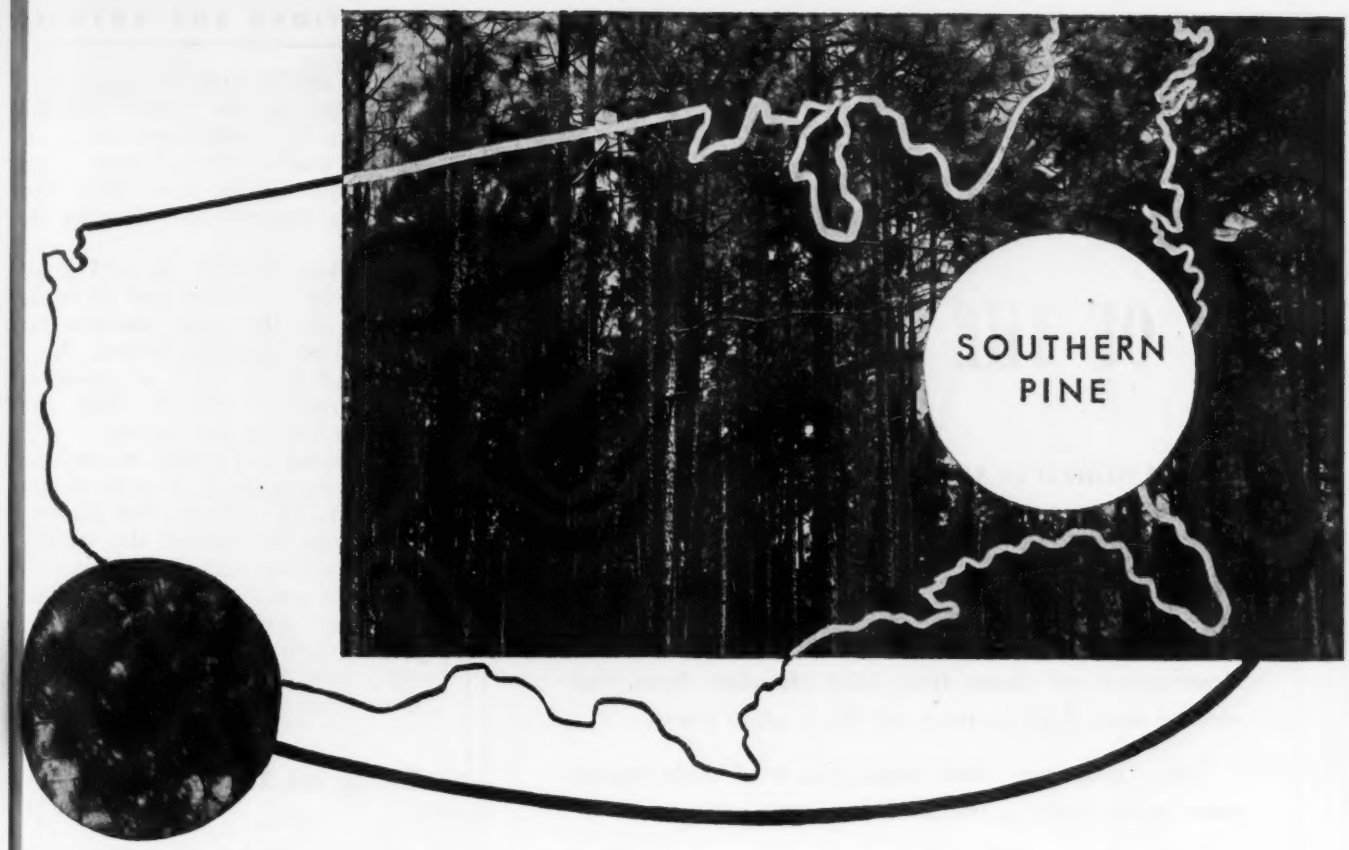
Technical Editor:

Out of four pieces of wool cloth being processed together, two showed yellow bars resembling a stain of some description running filling-wise through them. The discoloration was first noticed after the third process in finishing; the processes being in order—scouring, vacuum extracting, and drying. These bars vary in width from approximately one-eighth to three-eighths of an inch, and are at irregular distances throughout the pieces. I am sending you this problem in the hope that you will be able to tell me where and what the origin of the trouble is. The bars seem to be set very fast since I have tried different kinds of cleaners with no results. Re-washing does not remove them. Having this trouble over some period of time, we have spent many hours in searching and debating; but since we do not have laboratory equipment sufficient to cope with this type of research, we have been unable to detect the cause or source. (9031).

The fabric referred to was woven on an automatic loom; and since the advent of automatic looms, we have found, through our experience with them, that they can accentuate the mistakes and defects that are made in the mixing, carding, and spinning processes.

On this particular sample you have a very poor mix. You may check this by taking some of the filling out and then winding the filling around a black piece of cardboard or a board covered with black cloth. Notice that through this test the darker parts of the yarn have more twists and the lighter parts seem to have no black fibers. This is also evident in the warp. These marks are caused by the white fibers being oxidized.

In order to overcome this oxidation of the white fibers, it would be necessary to look at the steaming or conditioning of the filling. You may find that there is an excessive amount of moisture on some of the bobbins and this moisture tends to make the yarn condition unevenly. If the sun shines



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When Rayonier pioneered a process for the first commercial production of dissolving pulp from Southern Pine, it introduced a new industrial and agricultural economy in the South.

Rayonier's modern sulphite mill at Fernandina, Florida provides steady, profitable employment for local labor. The mill purchases a large part of its pulpwood supply from nearby farm and woodlands owners and encourages them through demonstration areas to manage their forest lands scientifically. A substantial community income is thereby provided from logging and pulp manufacture.

The development of tree farms and managed forests represents a forward-looking business activity, for they yield more pulpwood of higher quality. At the same time they assure continuous revenue to farmers from this fast-growing Southern Pine.

Our kind of forest management takes mature trees as a crop, but leaves the younger growth. Forest crops take longer to mature than Victory gardens, but they are crops just the same. When they are harvested new crops succeed them again and again — a perpetual servant to mankind — a new crop for the South.

Promotion of this crop and its use is part of Rayonier's long-range planning, for it will mean good paying jobs for returning servicemen and others, and greater income for the South.

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A HUNDRED YEARS AGO iron men, crowding sail on the towering masts of the clipper ships, carried textiles from our mills to the far corners of the world.

History repeats itself in strange ways. Today the descendants of those iron men clamber down the side of iron ships in many of those same ports.

Their uniforms, their tents, much of their equipment were made in the mills we represent.

We continue to produce goods to clothe, house and equip men entering the Army and Navy. And, too, we must replace materials lost, destroyed, or worn out, (for not even the stoutness and durability woven into our products can withstand the excessive demands of war-time service).

Such relentless, high speed production is of course not unique with the textile industry. It is not unique with any particular textile mills. But it is accomplished, in our case at least, only by the concerted, integrated efforts of every element—labor, management, and distribution.

This effective cooperation, under war-time conditions, between the mills and men which we represent and ourselves, as selling agents, is a promise of equally fine production when peace returns.

MINOT HOOPER & COMPANY

Selling Agents, 40 Worth Street, New York City

(established 1841)

BOSTON • CHICAGO • SAN FRANCISCO • ATLANTA

directly on the yarns for a few days it will oxidize the fibers. This will show mostly in piece-dyes and in the lighter shades of stock-dyes. Can stains will do the same thing after changing the lots and stripping the cards.

The kind of wool oil used is not known, but use of the best oil on the market, one that has a stainless base and will not oxidize is advised. It appears that stains which are caused on this particular piece of cloth were made in the yarn preparation.

In finishing, it would be advisable to have the piece run over the vacuum extractor. Do not stop the piece on the sewings or turn-off the vacuum as the excessive heat in the dryer will shade the piece and cause bars where the piece stopped. In dewing the piece, prevent water marks, as heat in the press will cause the excessive moisture to yellow the piece.

Sizing of Yarns

Technical Editor:

We are writing to ask if you can give us any information regarding the sizing of warp yarns as well as filling yarns. This is a new adventure for us, and we would be interested in knowing something about what the trade is doing as to equipment.

Our work is mainly in narrow-fabric Fletcher looms, and we feel that certain products we will be manufacturing will need sizing. Any information as to where we can get a complete picture on this will be appreciated. (9027)

Concerning this inquiry, we infer that either singles cotton or rayon are being woven. In either event, by all means, slash the yarn.

"Sizing" of yarns is taking skeins and either soaking or spraying them with a solution. "Slashing" of yarns is done by putting the yarn on a beam in sheet form and running it through a solution, after which it is run around drying cans and wound up on a loom beam.

Now, to get back to the main topic, there seem to be two schools of thought as to which is the better way to slash yarns. Most narrow-fabric weavers are well content with the five or seven-drum rayon slashers.

A great number of the narrow-fabric weavers of rayon are using section beams on the looms. If this inquirer still has what we know as the drop-weight system, it would then be our recommendation that he change from this system of let-off to a beam system. We do not believe that it pays to slash yarn and then put it on a traversed warp spool.

All of the above holds true where

Maintenance made easy with POWELL VALVES

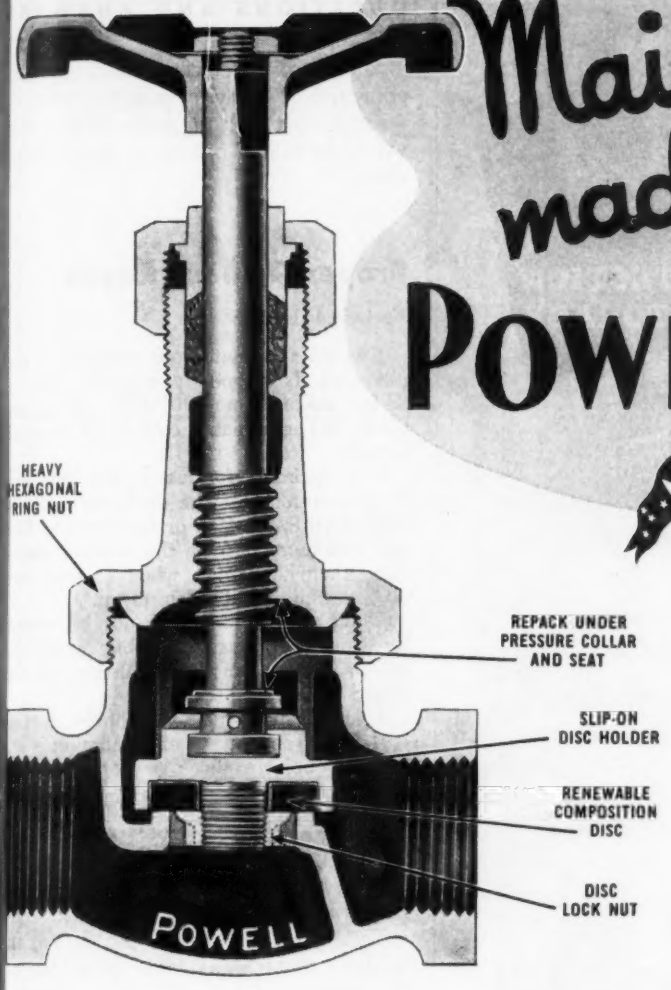


Fig. 150
BRONZE "UNION" COMPOSITION DISC GLOBE VALVE

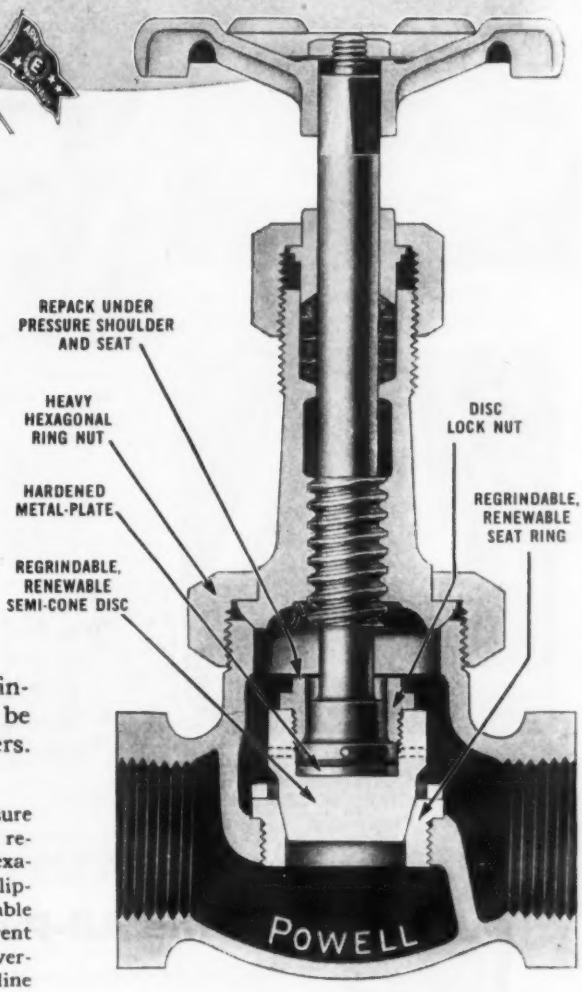


Fig. 1708
BRONZE "WHITE STAR" GLOBE VALVE

In these days of round-the-clock operation, time spent in the maintenance of equipment means a loss in production that can never be made up. If it's flow control equipment, Powell has the answers. Here are two examples.

Fig. 150—a Union Disc Globe Valve—is an economical valve for low pressure steam, oil, water, gas or air. The composition disc can be quickly and easily replaced without removing the valve from the line merely by backing off the hexagonal ring nut, lifting the bonnet assembly out of the body and removing the slip-on disc holder. The discs, especially for the smaller sizes, are readily obtainable and very inexpensive. Discs of various compositions are available to meet different service conditions and the importance of using the *right* disc cannot be overemphasized. The seat can be refaced without removing the valve from the line as indicated above.

For *extra long life*, Fig. 1708 is recommended. The seat ring and disc are made from special hard metal compositions. The hardness of the seat and disc, with their wide contact surface, tends to resist erosion and corrosion over a long period of time. Without removing the valve from the line, seats and discs can be reground to a new tight bearing and, when necessary, new ones can be easily installed. No special tools are required.

All Powell Valves that require repacking are provided with a specially machined cut-off to permit repacking under pressure when wide open.

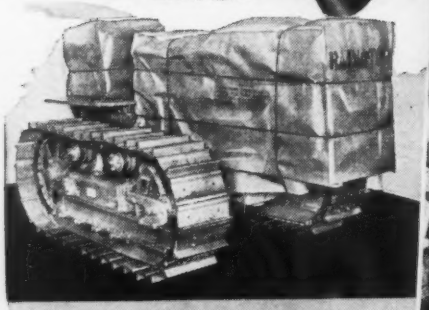
The Wm. Powell Co.
Dependable Valves Since 1846
Cincinnati 22, Ohio

POWELL VALVES

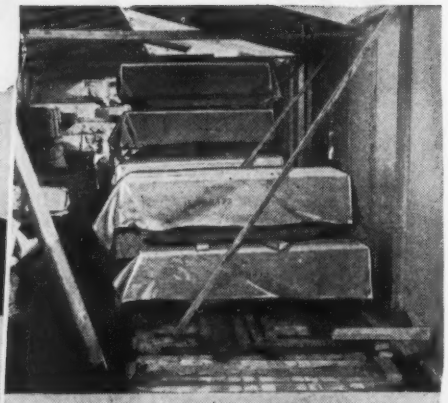
FIBREEN

SISAL-REENFORCED WATERPROOF PAPER

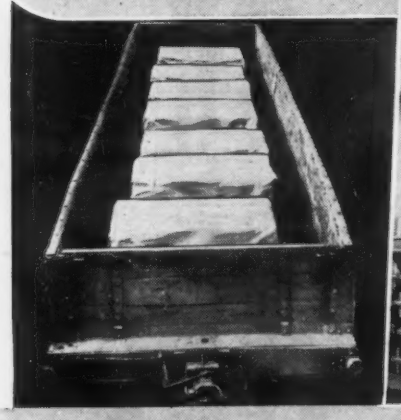
ASSURES DEPENDABLE PROTECTION in TRANSIT and STORAGE



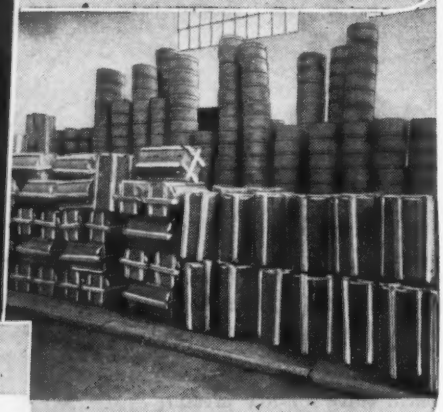
Fibreen keeps dirt and moisture from the motor of this powerful tractor.



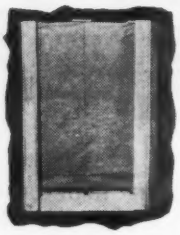
Temporary emergency storage shelters are made with *Fibreen* on 2"x4" frame.



Steel sheets wrapped with *Fibreen* are shipped safely in open cars.



Felt hats, wrapped with *Fibreen*, are protected from dirt and dampness.



Crates made with *Fibreen* often replace solid boxes, with resultant savings in packaging and shipping costs.

Send for a "working" sample of *Fibreen*. Our knowledge is at your service.

It's the All-Purpose Paper

Felt hats or tractors — sheet steel or hairpins — excess machinery in storage — goods shipped in open cars or in rolls, crates or cases — all are protected from moisture and dirt by *Fibreen*. Make sure that *your* products have dependable *Fibreen* protection — to assure safety while in storage and to prevent losses and complaints due to exposure in transit.

Keep a few rolls of *Fibreen* in your shipping room. It's pliable and tough!

THE SISALKRAFT CO.
205 W. WACKER DRIVE · CHICAGO 6, ILL.
NEW YORK · SAN FRANCISCO · LONDON · SYDNEY
In Canada Write to Alexander Murray & Co., Limited, at Montreal · Toronto · Halifax · Saint John · Winnipeg · Vancouver

Manufacturers of SISALKRAFT, FIBREEN, SISAL-X, SISALTAPE AND COPPER-ARMORED SISALKRAFT

rayon warps are concerned. If the company is weaving singles cottons, which we doubt, our recommendation would be that it procure a single drum slasher.

Proper Quill for Rayon

Technical Editor:

I would appreciate your opinion on the following: Is it good practice to use an 8¾-in. bobbin for 300 den. rayon, on C&K 4x1 automatic cotton or worsted looms?

It is desirable for me to use this size bobbin as most of the cloth we make is filled with 8/1 cotton or heavier, and this will give more yarn on the bobbin. However, there are times when I must run 30/2 cotton and 300 den. rayon.

These fine yarns would not be woven in a plain or sheer cloth but would be woven in the same cloth with the heavier fillings.

I know than an 8-in. bobbin is the best for rayon, but I am wondering if an 8¾-in. bobbin would not be satisfactory also for rayon, if the cloth is not a plain type. (8990)

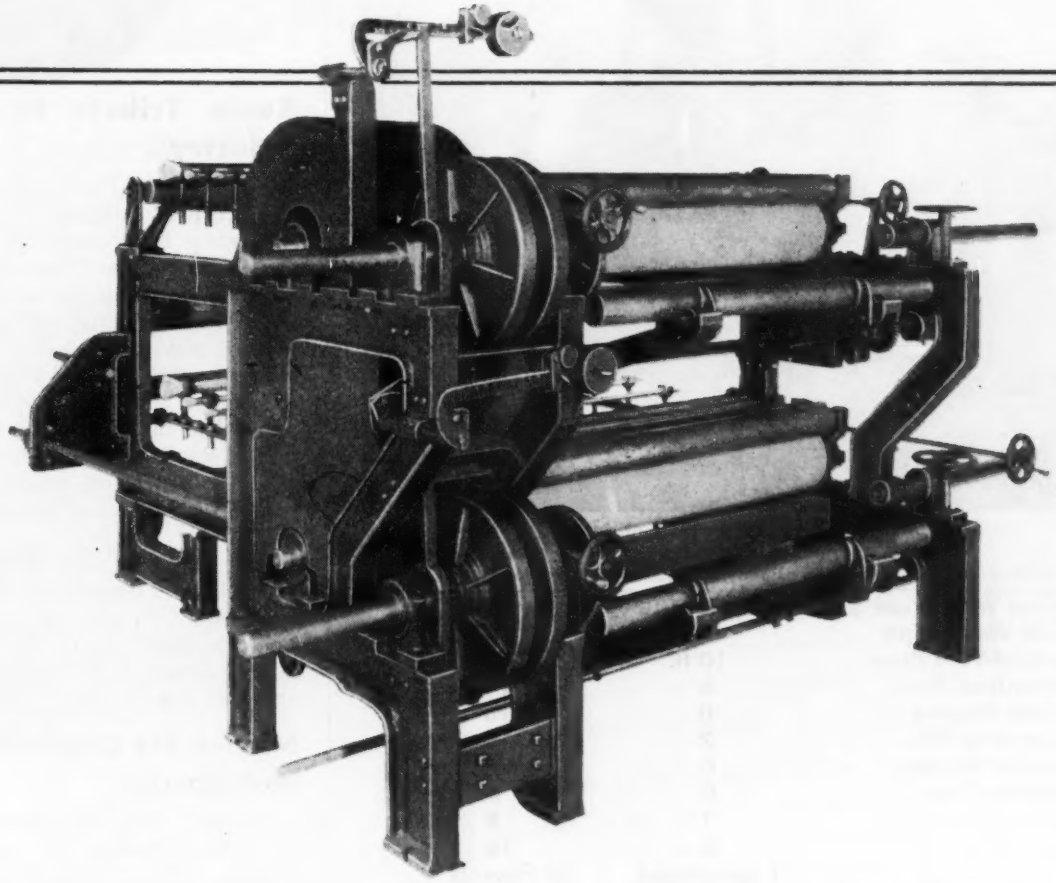
We would not consider the set-up given as ideal. There is, however, ony way partly to overcome the difficulty. That is to start the bunch in quilling as far away from quill butt as the filling feeler on the loom permits. This will automatically reduce the package length.

It is, of course, important that the proper fur is used. We would recommend oppossum trimmed so that the yarn has a chance to balloon away from the bobbin, particularly the tip. A 5-wind with a 2-in. stroke in quilling should prove satisfactory. Readings on a durometer should be around 90 for hardness. Do not build too thick a package, as the yarn may sluff-off due to its smooth characteristics. Cotton yarn will cling better than viscose or acetate rayon.

A Few Bound Volumes of TEXTILE WORLD Available

Six bound volumes of past issues of TEXTILE WORLD are available free of charge to anyone interested in securing old issues. Dates covered by these volumes include October to December, 1922; January to March and April to June, 1925; January to June and May to June, 1930; and April to June, 1932. Requests for these volumes should be mailed to the editorial office of Textile World, 330 West 42nd Street, New York 18, New York.

WILL YOUR SLASHER TAKE LARGER BEAM HEADS?



Ball Bearing Throughout

These slasher head-ends will accommodate beam heads up to 26" in diameter. Friction is lever type. It is not arranged for either increased friction or double gearing. Neither of these attachments is required, as this type of head is used only for light warps. The length of the double head-ends is 8'10".

This slasher head-end is furnished with ball bearings in all moving parts.

WE ALSO BUILD SINGLE HEAD-WAY FRONTS FOR LARGE BEAMS

WEST POINT FOUNDRY & MACHINE CO.

(Batson-Cook Company, Owners)

WEST POINT, GEORGIA

Which List of Materials Would YOU Buy?

Because a Bradley Washfountain serves 8 to 10 persons simultaneously, one of these group wash fixtures takes the place of 8 to 10 "single-person" wash basins. The clean spray of running water from the central sprayhead insures maximum sanitation,—better washing with no chance of contamination or spreading of skin affections.

Material Required	Bradley Washfountain accommodating 8 to 10 Persons	8 Single-Person Wash Basins
¾" Galvanized Water Pipe	20 ft.	36 ft.
2" Galvanized Waste Pipe	10 ft.	16 ft.
1½" Galvanized Vent Pipe	10 ft.	16 ft.
¾"x½" Galvanized Tees	0	14
⅜" Galvanized Nipples	0	16
½"x⅜" Galvanized Ells	2	16
1¼" Galvanized Nipples	0	8
2"x1¼" Drainage Tees	0	8
1¼" Traps	1	8
Angle Stops	2	16
	1 Sprayhead	16 Faucets

INSTALL BRADLEYS NOW

Make a survey of your washroom facilities now—rearrange or add to your present facilities. The installation of Bradley Washfountains will reduce water consumption, save space, cut maintenance costs drastically. BRADLEY WASHFOUNTAIN CO., 2325 West Michigan Street, Milwaukee 1, Wisconsin.

BRADLEY washfountains

Write for Catalog 4308 and Washroom Survey Sheet to help estimate washroom arrangements appropriate to your needs.

BOOSTING EMPLOYEES'

Radio Tribute to Cotton Industry

Army Service Forces paid tribute to the cotton industry in a recent "Weapons for Victory" program over the CBS network. The program was built around the heroic defense of Bastogne and dramatized the part that cotton played in aiding American troops to withstand all German efforts to reduce that strong-point. The scene, laid in a cotton tent which replaced the bombed hospital, explains the use of cotton medical supplies which were delivered by cotton parachutes.

Two sergeants were interviewed by Mrs. Dutchie Baggett, an employee of Bibb Mfg. Co., who has been engaged since the beginning of the war in producing cotton duck for tarpaulin, tentage, and tops for Army vehicles.

Movies for Conservation and Morale

Pepperell Mfg. Co., Boston, Mass., has made available for use of high schools, colleges, and clubs, a sound

Poster for current Red Cross War Fund drive. The campaign is being supported actively by a multitude of textile men all over the country.

Only the

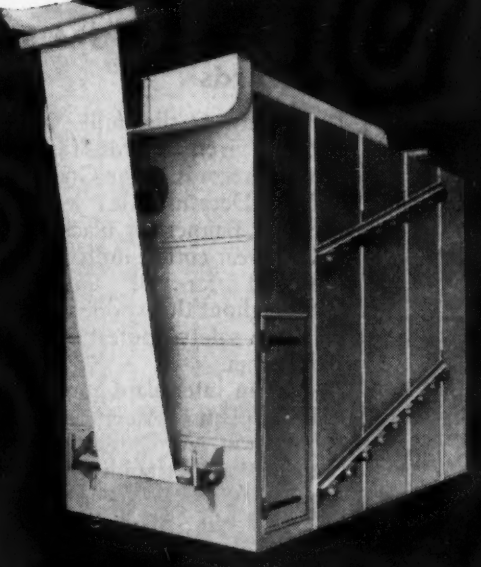
PROCTOR ROLLER TYPE DRYER

offers all these advantages

INDIVIDUAL MOTOR DRIVEN ROLLS

MAXIMUM AIR CIRCULATION

ADAPTABLE FOR CURING



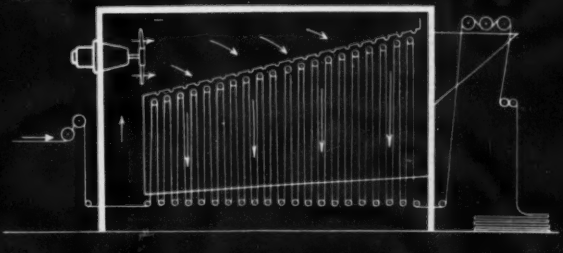
No other dryer for piece goods combines all of the advantages offered by this patented Proctor Roller Type Dryer. It is especially desirable for drying dyed fabrics before developing, as well as fabrics made from synthetic fibers.

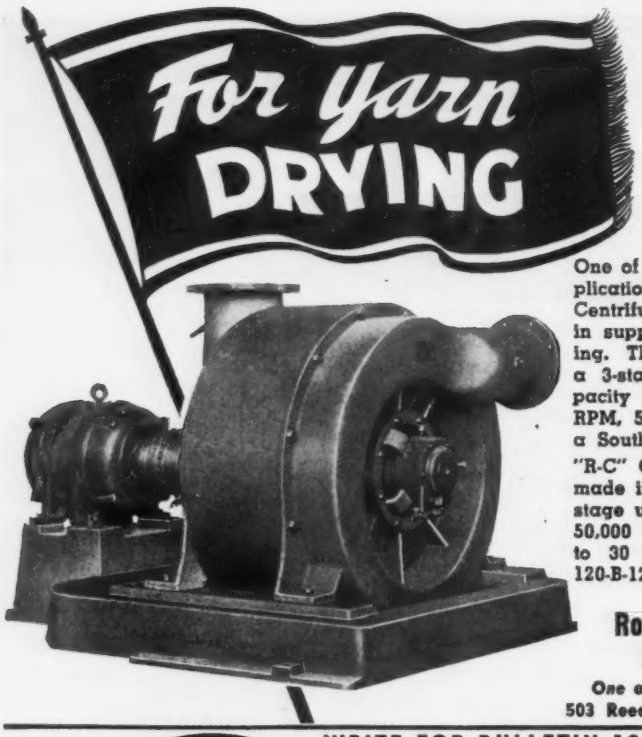
As can be noted from the cross section below, the fabric is carried through the dryer by means of rolls. One of the outstanding features of this machine is the patented direct motor drive on these rolls. By means of this drive, the speed of the roll is automatically regulated to compensate for shrinkage taking place in the cloth. It is obvious that when material enters the dryer at a certain length it will be running at a given lineal speed, but as the material shrinks it will have to be compensated for by the speed of the rolls. This is entirely automatic in the Impinge Roller Dryer.

When this machine is used for drying, the goods travel continuously between staggered nozzles that blow heated air at high velocity on both sides of the material. This speeds drying and means only short exposure of the fabric to the drying medium. This unique method of air circulation assures maximum drying effect in a highly compact machine.

With modifications in design this machine is recommended for curing resin treated fabrics, where capacity requirements are moderate. Because of the manner in which goods are carried through by means of rollers, it is sometimes possible for this machine to be supplied as a combination dryer and curer. Cross section below illustrates Proctor Roller Type Dryer, designed for curing. For complete details on how well this machine can fit your needs, as either a dryer or curer, write today.

PROCTOR & SCHWARTZ, INC.
SEVENTH & TABOR ROAD, PHILADELPHIA 20, PA.





One of the most successful applications of Roots-Connersville Centrifugal Blowers has been in supplying air for yarn drying. The "R-C" unit shown is a 3-stage blower with a capacity of 1,200 CFM at 3,500 RPM, 5 lbs. pressure; used in a Southern yarn drying plant. "R-C" Centrifugal Blowers are made in both single and multi-stage units in capacities up to 50,000 CFM and pressures up to 30 lbs. Copy of Bulletin 120-B-12 mailed on request.

Roots-Connersville Blower Corp.

One of the Dresser Industries

503 Reed Ave., Connersville, Ind.

WRITE FOR BULLETIN 120-B-12

Roots CONNERSVILLE SINCE 1854 Centrifugal EXHAUSTERS and BLOWERS

Why Not? *Have your* PERSONAL ACCIDENT *and* HEALTH INSURANCE *with . .*

EASTERN COMMERCIAL TRAVELERS

Mutual Association • Direct Purchase

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Insure Your Earnings . . . Protect All

ACCIDENT POLICY PAYS		SICKNESS POLICY PAYS	
ACCIDENTAL DEATH	WEEKLY DISABILITY	$25.00 per Week for Confining Sickness	$10.00 per Week for Non-Confining Sickness
$5,000-$10,000	$25.00-$50.00		
Estimate Annual Cost $15		Estimated Annual Cost $20	

50 YEARS OF UNFAILING SERVICE

Provides protection 24 hours a day when traveling, while at work, around the home or on vacation

NO POLICY CANCELLED OR RATES INCREASED OR BENEFITS REDUCED ON ACCOUNT OF ANY AGE!

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motion picture, "A Gift for the General." The film is accompanied by a 32-page booklet on the care and conservation of household textiles, and is part of a three-point conservation program the company adopted when the textile market became critical.

Two new films, "Target Japan" and "Pacific Firepower," have been made available for showing to war workers in plants and to labor unions by the Navy's Industrial Incentive Division.

Housewife-Shift Desired to Spur Twill Output

To increase monthly production of Army twill from 400,000 to 1,000,000-yd. a month, Lane Cotton Mills are arranging a special night shift for housewives. Women who were formerly textile workers will work four hours a night at the mill under an agreement between the management and the Textile Workers' Union. The Army also recently assigned a detachment of textile-trained soldiers to the mill to help meet the demand for twill.

More "E" Awards

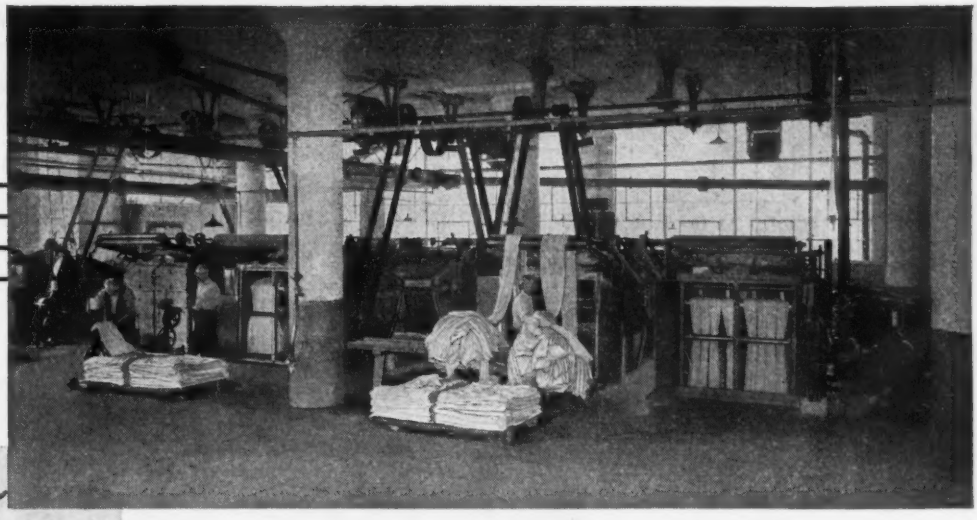
The following companies have received Army-Navy "E" awards, either in the form of the "E" flags or supplementary white stars, representing additional periods of outstanding contribution to the war effort: J. L. Stiefel & Co., Inc., Wheeling, W. Va., fifth award; Nashawena Mills, New Bedford, Mass., fourth award; Lees-Cochrane Co., Inc., Bridgeport, Pa., fourth award; Decatur plant of Goodyear Clearwater Mills, Decatur, Ala., second award; and Rowan Mills Co., Salisbury, N. C., first award.

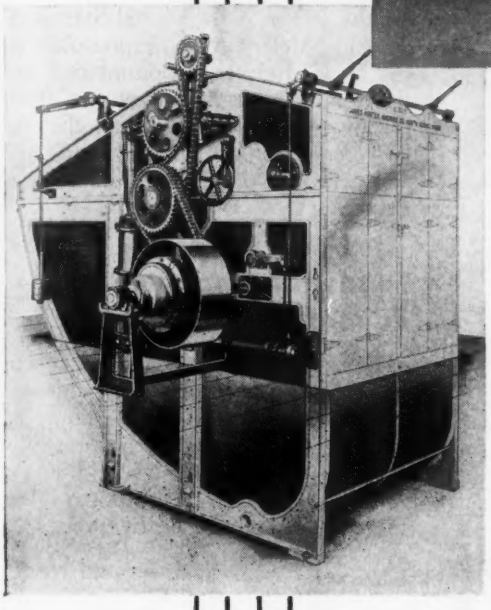
Textile Mills Get Safety Awards

Many textile mills have recently been given awards for outstanding safety records. The Goodyear Decatur Mill, Decatur, Ala., won the Slusser Safety Banner for placing first among Goodyear cotton mills. It also ranked second for all Goodyear plants throughout the world, and placed third in the safety contest for the state of Alabama.

In an inter-plant contest, the Front Royal plant of American Viscose Corp. has been awarded the H. C. Neren trophy for outstanding safety performance during 1944.

A plaque will be awarded to workers of Bristol Weaving Co., Bristol, Va., unit of Burlington Mills Corp.,





HOW HUNTER #26 FULLING MILLS AID BOTANY WORSTED MILLS IN GETTING HIGH SPEED, TROUBLE-FREE PRODUCTION

The illustration above shows a battery of eight Hunter No. 26 Fulling Mills installed in the Botany Worsted Mills' ultra-modern finishing room.

These Stainless Steel Fulling Mills save wet finishing costs and they reduce dead loss. Smooth polished surfaces cut flocking. More weight is delivered in your cloth and less down the drain. Stainless steel lining, guides, stop motion and crimping boxes, sectional rubber rolls and hydraulic tension for the top roll eliminate practically all ordinary repairs, plus lost production time due to breakdowns. In addition, Hunter Stainless Steel Mills give you twice to four times the capacity. Uniformity is greatly improved and production increased—often to the point where twice the load is handled in two-thirds or even half the time.

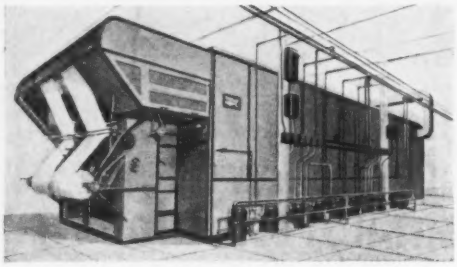
More facts about this equipment are set forth in a bulletin on these modern Fulling Mills. It will not obligate you to write for a copy with a list of the mills now operating the Hunter No. 26.

JAMES HUNTER MACHINE CO.
NORTH ADAMS, MASSACHUSETTS, U.S.A.
FOUNDED 1847

NATIONAL AUTOMATIC PIECE GOODS DRYER

The dryer that held leadership through pre-war days . . . and which will again offer *maximum opportunity for profits* when finishing plants and departments produce for peacetime markets. It will pay you to consider "NATIONAL", *now.*

"NATIONAL" post-war DRYERS of this type will incorporate every design and construction feature essential to the fast, uniform drying of rayon, cotton, woolens and mixed piece goods, with utmost economy. Automatic operation and concontrol will assure both convenience and accuracy.



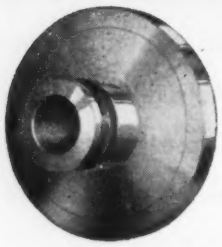
A Representative Will Gladly Give You Details.

THE NATIONAL DRYING MACHINERY CO.

WEST LEHIGH AVE. and HANCOCK ST., PHILA. 33, PA.

New England Agent: C. H. INGALLS, Providence, R. I.

Worn Parts Reconditioned
actually outwear new ones



For Example: **Rollers.** We turn roller down and shrink on a Thomas & Skinner Long Life Tire made from special wear-resisting material. We also grind surface to correct diameter.

Thomas & Skinner Reconditioning Service restores cams, gears and other parts for full-fashioned knitting machines to their exact original size and shape. And one special processing gives T & S Reconditioned Parts a more enduring surface than the same parts had when new. Satisfactioned guaranteed.

T & S Products

We manufacture an extensive line of quality products for full-fashioned hosiery mills including Jacks, Narrowing Plungers, Narrowing Chain, Friction Springs, Snapper Springs, Magnetized Sinker Hooks, Cams, Running-in Machines, Locking Dials.

Thomas & Skinner Steel Products Co.

1119 EAST 23rd STREET • INDIANAPOLIS 5, INDIANA

for having completed 4,000,000 man-hours without a lost-time accident.

The fabricating division of Ware Shoals Mfg. Co., Ware Shoals, S. C., won a Liberty Mutual Insurance Co. safety award for completing six years, or more than 13,700,000 man-hours without a lost-time accident, and Ashland Corp., Jewett City, Conn., was also awarded a certificate of merit by the same company for conspicuous achievement in accident prevention.

General interest in reducing mill hazards is shown by the registration for the 1945 Tenth Annual State-wide Textile Safety Contest, sponsored by the N. C. Industrial Commission and the N. C. Cotton Manufacturers' Association, which is larger than that for any proceding year, with 425 mills and approximately 145,000 employees participating.

Funds for Employee Education

Funds of two foundations have been made available for technical training of employees in the textile industry.

The Textile Dyers Federation Education Foundation has established a fund of $11,000 for training workers in the dyeing industry, including possible scholarships at accredited textile schools, and seminars in trade union problems, according to Joseph W. Knapik, president of the Federation of Dyers, Finishers, Printers & Bleachers of America, Paterson, N. J.

Employees of American Yarn & Processing Co., Mount Holly, N. C., and affiliated companies, will benefit from funds of the Dickson Foundation. R. S. Dickson, president of the company, is founder of the foundation.

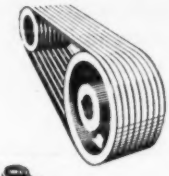
Booklet for Its Service Men

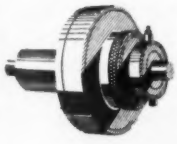
Southeastern Cottons, Inc., Charlotte, N. C., is preparing a brochure to be sent to former employees who are now in the armed forces. The book will contain 44 photographs of company personnel and departments.

Unveil Service Plaque at Pomona

A plaque bearing the names of 150 employees of the Pomona Mfg. Co., Greensboro, N. C., now in the armed services was unveiled recently. William Ochrant, of Cincinnati, Ohio, president, and Walter Dillard, executive vice-president, were speakers. Frank Petrea, superintendent, presided.

HE KNOWS WHAT'S RIGHT IN POWER DRIVES





He Is The Dodge Transmissioneer

He's a specialist in putting power to work, graduate of a factory course. That insignia on his lapel means he has proved his qualifications to prescribe the most efficient power drive to meet your needs. He can show you new and better ways to put *all* your power into the job.

His knowledge and experience are backed by America's broadest line of mechanical power transmission equipment—Dodge precision-built bearings, sheaves, pulleys, clutches and other drive components. Transmissioneered means advanced design in power drives.

Transmissioneering service is nation-wide—there are 210 Dodge factory graduate Transmissioneers in principal cities. Whenever you have a problem in power application, call a Transmissioneer—your local Dodge distributor. He has the latest answer. Often your immediate needs can be supplied from local stock.

DODGE MANUFACTURING CORPORATION, MISHAWAKA, INDIANA, U. S. A.

DODGE

MISHAWAKA

THE RIGHT DRIVE FOR THE JOB

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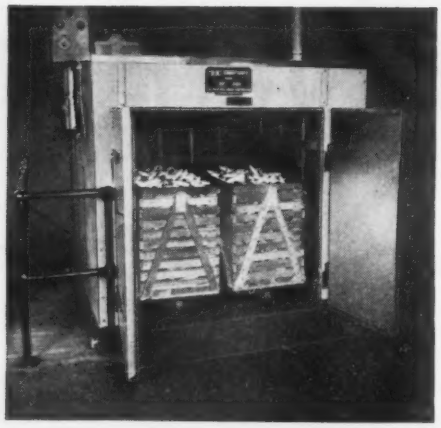
THE "H-W" CONDITIONER



FOR REGAIN AND TWIST SETTING

WOOLEN
WORSTED
SILK
RAYON
NYLON
COTTON

Absolute Uniformity!

THE INDUSTRIAL DRYER CORPORATION
Stamford Connecticut

R.D. COLE QUALITY

TANKS
TOWERS
STANDPIPES
STACKS
KIERS
KETTLES
VATS
AIR RECEIVERS
WELDED STEEL PIPE
DIGESTERS
BOILERS
BINS
FABRICATED FRAMEWORK

MARITIME "M" MERIT AWARD

Tank Builders for over 80 Years

R. D. COLE MFG. CO.
Established 1854
NEWNAN, GEORGIA

Textile France Pattern

(*Continued from page 127*)

of cotton yearly in the period of 1934 to 1938 was 1,181,000 bales (617,000 American and 564,000 foreign). France was capable of producing about 2 billion yards of broad woven cotton goods a year, and Belgium about a half billion yards.

During the German occupation of France, the textile industry of the country was converted largely to the manufacture of rayon textiles. Mills were kept going to the extent they were useful to Germany through importation of pulp for synthetic yarn manufacture into France from German-held territories. It is estimated that the Germans took about one-fourth of the production. In the years 1941 through 1944, excluding the 100,000 tons which the Germans officially claimed, total production for French consumption (industrial, civilian, and military) was under 400,000 tons.

Restoration of France's textile industry depends not only on trans-Atlantic shipping facilities but also on provisions (1) to take care of her railroad system, (2) to get adequate supplies of trucks and barges, (3) to boost production and imports of coal.

There must also be a strong coordinating committee which will apportion materials to the best advantage. The new Allied authority in Europe is the European Economic Commission. Under it, Four-Party Committees have been set up to deal with urgent economic problems, both in Paris and in Brussels. Subcommittees deal with specific fields, but so far they have been concerned chiefly with military needs.

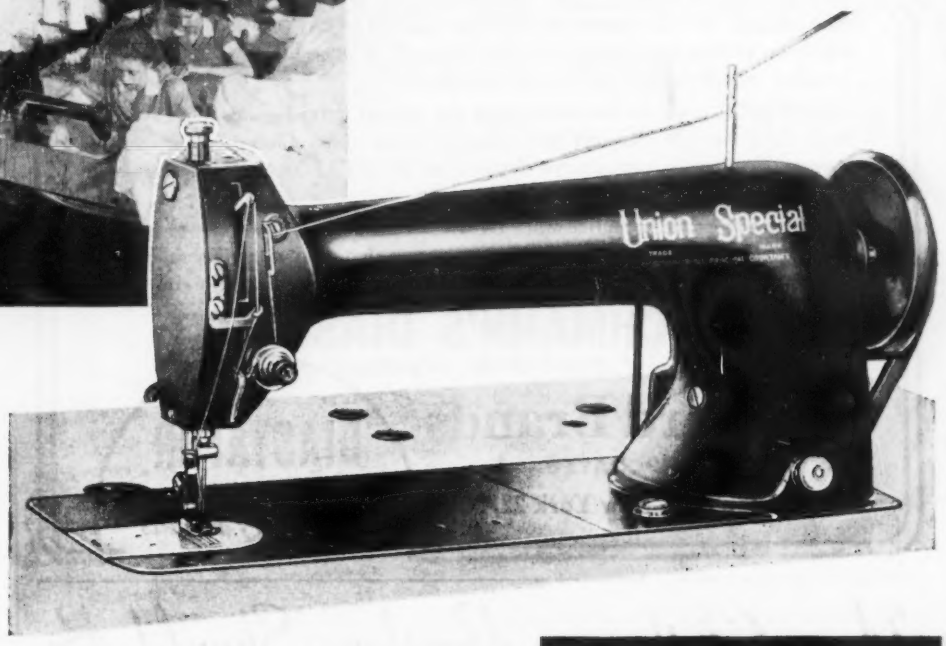
Opening and Carding

(*Continued from page 119*)

tion is required, it is a better policy to speed up the lifting apron than to open this gap. It is best to keep the lifting apron running about three times as fast as the carrier apron. The doffer should run almost twice as fast as the combing roll.

Vertical Opener. The beater speed should be around 650 r.p.m. The character of the cotton should determine the necessary speed, but avoid too high a speed on this machine, as serious damage can be done to the cotton. The setting of the grids depends entirely on how much waste must be removed. It must be remembered that if grids are too open, a large amount of

Union Special Class 61300 Lockstitch

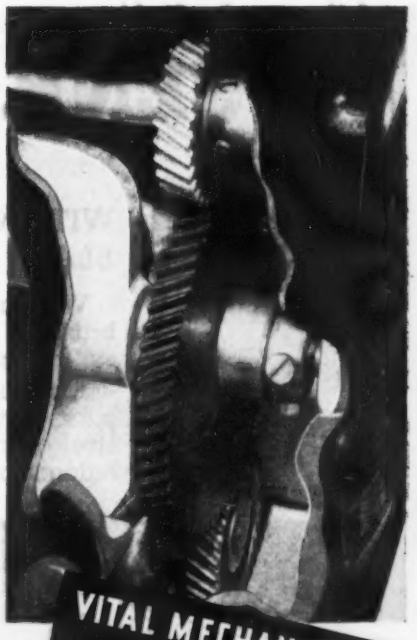


. . . for all plain sewing

Mechanical superiority is the secret of *Lockstitch* popularity. Our engineers designed this *Lockstitch* plain sewer to give long, satisfactory use and unvarying excellence of performance. Sales records are proof of its success. Year after year since its introduction nine years ago, the *Lockstitch* sales curve has climbed steadily upward. Two out of every three machines sold have been repeat orders from satisfied customers.

The *Lockstitch* construction eliminates complicated mechanisms. It is the closest thing to an all rotary machine ever built. The feeding mechanism in this machine, unlike other lockstitch machines, is directly connected to the heavy duty lower main shaft, assuring positive feed for all weights of materials. It has an exclusive lubrication system which is leakproof and effective. The rotary hook drive is sealed and the hook is automatically lubricated.

These features mean higher production, lower costs, less maintenance, faster operation. Write for illustrated literature and details on the Union Special *Lockstitch for every plain sewing operation*, either to your nearest Union Special representative or directly to us.



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486 North Franklin Street • Chicago 10, Illinois

EVERYBODY HAILS THE "CHAMP"!

The champs get the cheers, and that's what DIASTAFOR de-sizing agent has been getting for 37 years. It's the "champ" of them all, used and recommended wherever fine fabrics are produced.

DIASTAFOR provides the ideal finish for cottons, mixed goods and rayons. It gives a smooth, flawless performance every time. Chemists and mill-owners know they can always depend on DIASTAFOR for superior de-sizing results.

The best way to fully realize what DIASTAFOR can do for you is to try it. And there's no time like the present, so make that trial *now*. If you'd like to know more about DIASTAFOR, ask our technical man or write to—

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37 Years of Satisfactory Results

Your Clothroom Brushes Should Be

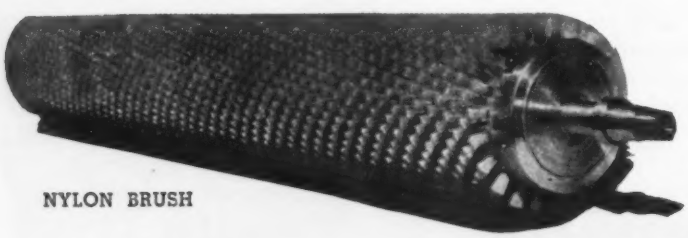
JENKINS METAL CORE BRUSHES—

BLACK CHINA BRISTLE

WITH NYLON or BLACK CHINA BRISTLE

We make brushes for all makes of shears and brushing machines, for use with cottons, woolens, synthetics, etc.

Also furnisher brushes for printers, and many other textile brushes, with refillable cold drawn steel or aluminum cores for strength and perfect balance and alignment.



NYLON BRUSH

Write for free 12 page illustrated booklet of Jenkins brushes.

M. W. JENKINS' SONS, INC.
CEDAR GROVE, ESSEX COUNTY, NEW JERSEY

We manufacture all types of Industrial Brushes

good cotton, as well as motes, dirt, etc., will be removed.

Lattice Openers. Beater speeds of about 650 r.p.m. are advisable. The grids should be set to extract the amount of waste required.

PICKERS. Cotton should be delivered to the pickers in small, fluffy masses.

In the one-process picker, fan speeds should be set as low as possible in the breaker and intermediate sections to get the utmost in cleaning. In the breaker and intermediate sections, an even sheet on the screen is not required, as the mass of cotton is again broken up by the finisher beater. In the finisher section, the fan speed should be high enough to get an even sheet on the screen. Damper plates should be adjusted, so that lap sheets are even all the way across from draw roll to calender roll.

Avoid high beater speeds. Low beater speeds often give better cleaning.

Each beater section should be set to take out the required amount of waste regardless of settings used on other pickers. It is preferred to have the breaker-beater section take out the most waste, the intermediate section a little less, and the finisher section the least.

A light steady feed will give a cleaner and more uniform lap. Blending reserves should run approximately 90% of the time and should not have more than seven 5-sec. stops per lap. The new two-speed drive allows the blending reserve to run 100% of the time.

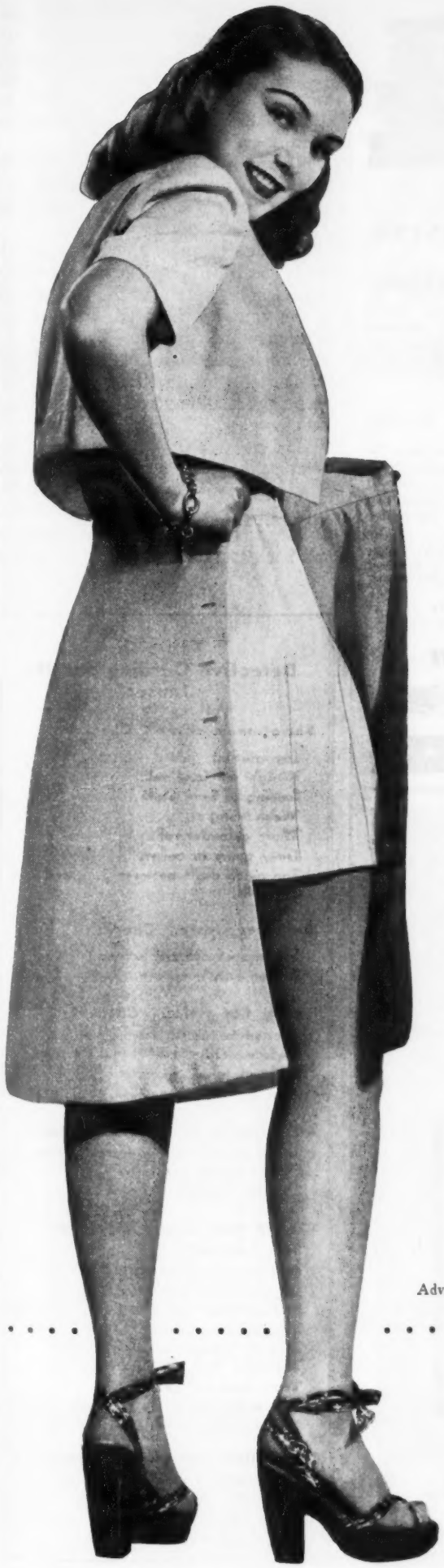
Beater-to-feed-rolls setting should be $\frac{1}{4}$ in. to $\frac{3}{8}$ in. Cut offs should be set as close as possible to beaters. (Approx. $\frac{1}{16}$ in.)

Moisture regain should be constantly checked if uniformity in the weight of the lap is desired. It is to be remembered that doublings are few, and each process is required to deliver as even a product as possible.

A yard-to-yard test made daily will keep the supervisor informed as to the evenness of the lap. A good picker lap is a "must" in a mill of today.

All pickers should be kept in the best mechanical condition, and overhauling and cleaning schedules made up. Dirty screens and chokes on draw and feed rolls are causes of uneven laps. A periodic check of lap weights will tell the supervisor if the operator is letting over- or under-weight laps go to the cards. For pickers on which an oil spray is attached, greater care should be used in cleaning grid bars and leaf bars, as these are usually coated with oily waste.

Good laps can be recognized as follows: (1) They are not too bulky—diameter should be approximately 20



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DRAX-treated fabrics

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lead a charmed life!

Charming fashions start with the fabric . . . and when the fabric embodies an *extra* it means more in sales, and in customer satisfaction too!

Now . . . Johnson's DRAX gives you that extra! DRAX is a new fabric finish that guards the freshness of any textile or garment. DRAX-treated fabrics resist dirt . . . withstand handling . . . won't easily soil . . . shed water . . . and can be re-DRAXed at home or by laundries and dry cleaners.

DRAX is easy and economical for you to use . . . on cotton, rayon, linen, wool . . . on dresses, playclothes, sportswear, shirts . . . anything safe in water is safe in DRAX. You need no extra, special equipment. DRAX is non-flammable and will not harm skin or fabric. DRAX stays stable in solution, will not separate or harden during storage, may be diluted with ordinary tap water.

DRAX is made by the makers of Johnson's Wax! Part of every Johnson national advertisement is devoted to DRAX promotion. In Saturday Evening Post, Ladies' Home Journal, Good Housekeeping, This Week, American Weekly and many others, the consumer is being told about DRAX.

Important to you, too, is the fact that advertisements in Daily News Record and Women's Wear Daily tell merchandise buyers, garment makers, and converters about DRAX . . . suggesting that they specify DRAX when ordering. Attractive labels and tags for DRAX-treated fabrics are available. The market will be ready . . . you can be among the first!

FREE! Generous sample of DRAX—fill out the coupon and mail it today!

DRAX is made by the makers of

JOHNSON'S WAX

S. C. JOHNSON & SON, INC.
Products Finishes Department, Racine, Wisconsin

Advance style courtesy Chicago Fashion Industries

S. C. JOHNSON & SON, Inc., Dept.TW-35,Racine, Wisconsin

Yes, I'd like to try DRAX. Please send my FREE sample, plus instructions and complete information.

Name_____

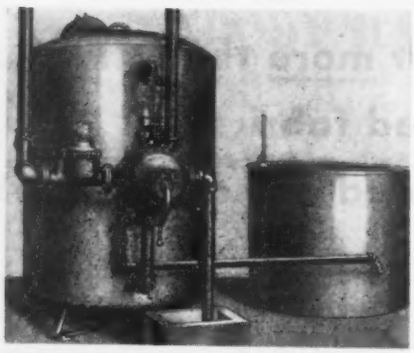
Firm Name_____

Address_____

City_____ State_____

Reduce 2 IMPORTANT OPERATING COSTS!

WITH *Refinite* WATER REFINING



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This has been and will continue to be a problem for quite a long time to come.

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STERLING RING TRAVELER CO.
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in. (2) They are kept within the weight tolerance—½ oz. either way from standard is ordinary practice. (3) They have a low yard-to-yard variation—maximum variation should be ¾ oz., with 50% of the lap varying less than ¼ oz.

Rejected laps can be kept under 1% with a well set picker. There are two reasons why rejected laps should be kept at a minimum:

1. The cotton in these laps has already been subjected to the beating and cleaning action of the picker; and if this action is repeated, many of the fibers will be broken. This shortens the fibers and many of them will become waste, while others will tend to make inferior work in the succeeding processes.

2. Once a lap has been formed, the cotton is compressed and passes through the machines in heavier tufts, thus causing uncontrolled lap weights at the pickers. Rejected laps should be fed back to the regular mix through a

Table II.
Defective Carding and Its Causes

Variation in sliver. Check:
- Lap guides.
- Weight on feed roll.
- Setting of feed plate.
- Worn trumpet.
- Worn calender rolls.
- Dirty gears in coiler.
- Too much draft between 3-in. and 2-in. cal. rolls.

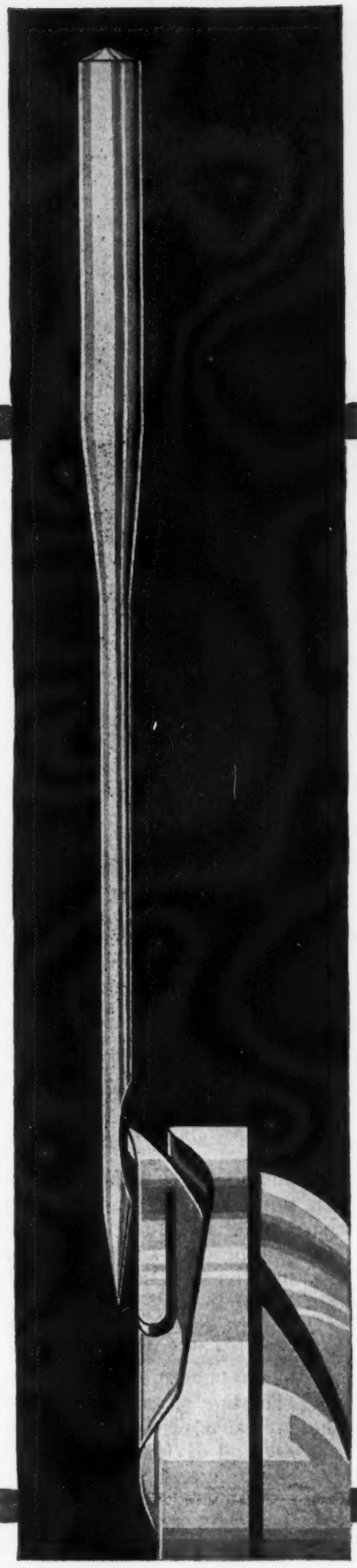
Excessive waste. Check:
- Settings of cylinder screen.
- Broken bars in screen.

Heavy flat strips. Check for:
- Back plate too far from cylinder.
- Flats too close.
- Front plate too open.
- R. p. m. of flats too slow.

Rich lickerin motes. Check for:
- Mote knives too far from lickerin.
- Screen not set properly.
- Lickerin too fast.

Cloudy card web. Check for:
- Too much draft.
- Not enough stripping.
- Dirty, dull, or faced wire.
- Bad settings—too wide.
- Too much production.
- Dull or damaged lickerin.
- Too open feed plate setting.
- Worn feed roll bearings.
- Bad doffer comb.
- Doffer-comb setting.

Card sliver variations. Check:
- 7 to 8% is Excellent
- 9 to 10% is Good
- 11 to 12% is Fair
- 13% and over is Poor



SPLIT-SECOND TIMING - - - - for High-Speed Sewing

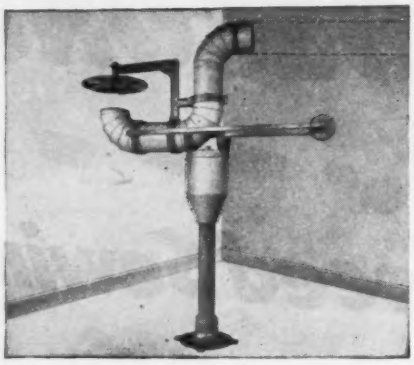
An accurately manufactured needle is vital in running a perfect seam. To coordinate smoothly with the stitch forming mechanism, the needle cannot be too long nor too short. The over-all length must be maintained at required measurement so the revolving hook unfailingly engages the thread loop at any speed of machine operation.

Willcox and Gibbs needles are designed and made to operate perfectly in "W & G" machines which run at speeds up to 6000 stitches a minute.

Accurate over-all measurement of Willcox and Gibbs needles is assured through specially designed test tools employed by experienced and skilled inspectors. These precision tests are your guarantee of a uniform standard in Willcox and Gibbs needle production.

Avoid costly tie-ups from imperfect needles by using only genuine needles in your "W & G" and Metropolitan Sewing Machines.

WILLCOX & GIBBS SEWING MACHINE CO.
214 West 39th Street, New York 18, N. Y.



Synthetic Fiber Blending

TRUSLOW* BLENDER (patented)

Synthetic fiber miracles, undreamed of yesterday, have become a fact in the textile industry today. Completely thorough blending of spun rayon, wool and cotton with fibres of other raw materials is more essential than ever before.

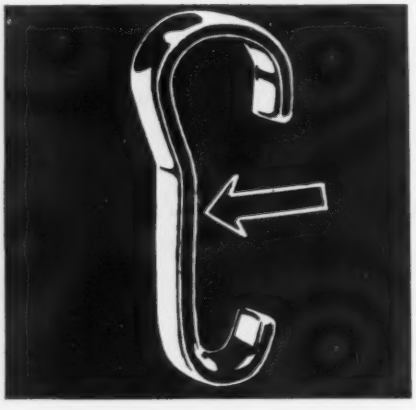
The Improved New Model Truslow Blender has been developed to provide thorough blending of almost all types of natural or synthetic fibers. The stock is blown through piping to the Blender. It then passes through a rotating arm and is blown up against the vanes of the canopy—making it revolve and distribute the stock in the form of a heavy snowstorm.

*Reg. U. S. Pat. Off.

Curtis & Marble
MACHINE COMPANY
WORCESTER, MASSACHUSETTS.

PERFECT BALANCE

A "U.S." Ring Traveler Feature—



Here's a Traveler that, weighing the same on both sides and with the center of gravity in the straight part of the Shank, gives far better service. It distributes lubricant evenly, wears evenly, won't "pivot", in other words, won't twist itself or the yarn fibres. This is just ONE of the MANY "U.S." features.

• SOLD UNDER THESE TRADE NAMES

Bowen Round Point Travelers
Bowen Square Point Travelers
Bowen Improved Vertical Bronze
Bowen Patented Bevel Edge
Bowen Flat Oval and Round Wire Traveler
Bowen Patented No-Bow Vertical
Bowen Patented Vertical Offset

U.S. RING TRAVELER CO
AMOS M. BOWEN
President and Treasurer
PROVIDENCE RHODE ISLAND

waste hopper in the opener room, with not over 1% of the total mix being lap waste.

CARDING. Carding is considered the most important process in cotton goods manufacturing and is without doubt the foundation of good or bad work. It has been noticed that when cards run poorly, spinning suffers also. The greatest of care and attention should be given the card at all times.

Card grinders are key men because the quality of work in operations following the card depends upon the skill and thoroughness with which these men do their work. Neglect of small details pertaining to the duties of card grinding causes much bad work in operations succeeding carding. Good grinders and good grinding wheels are essential. Grinding schedules should be set up and maintained. On each card, records should be kept of the condition of clothing, flats, lickerin, etc.; and replacements should be made as soon as possible.

Each card should be set to remove a certain percentage of waste; the amount of waste removed should be checked periodically.

Care should be exercised not to overload or overwork the card. It is claimed that the more rapidly the work can be taken from the card, consistent with the quality or grade of work required, the stronger the yarn. Maximum variation in yard-to-yard sliver weights should not be over 1½% either way.

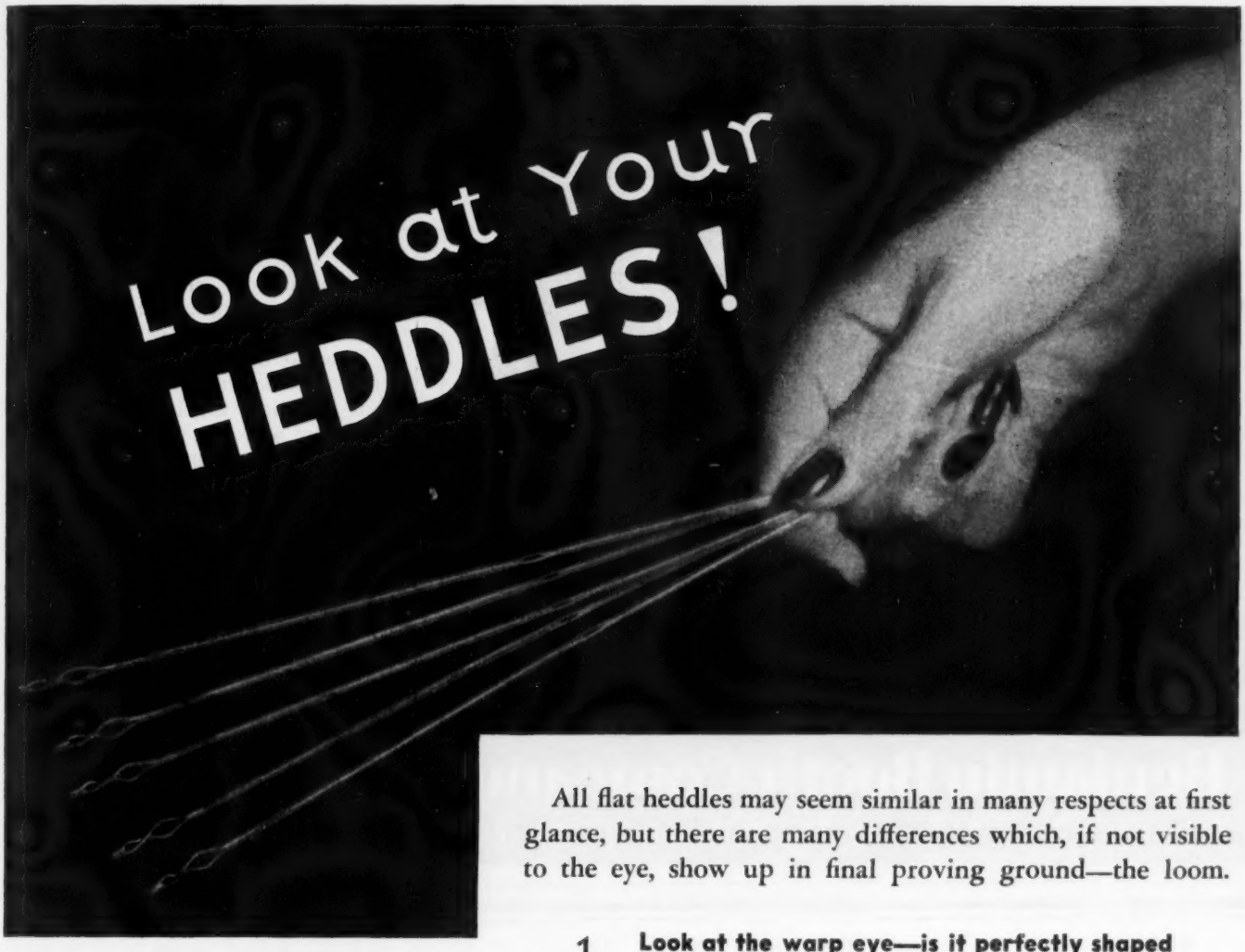
Constant Load Tests

(*Continued from page 117*)

duction voltage regulator. (The numbers printed on the standard recorder chart have no direct significance.) *Load* is measured on the horizontal axis and *time* on the vertical. Note that despite the fact that a stretch-ratio of approximately 1 to 9 existed between the two test specimens, the rate of load was constant and the same for both. The time required for the pendulum to traverse the range between loads *A* and *B* (arbitrarily selected) was 5.6 sec. in both instances.

FEATURES OF THE CONTROL. Provision has been made to accommodate operation at any one of a wide range of loading rates. By simply adjusting a dial on the panel, the operator may select the rate of load he requires. The total range available on the existing panel is 3.5 to 1 (8.75 lb. sec. to 2.5 lb. sec. on a 75-lb. capacity machine).

Another feature considered necessary is provision for an idling speed



All flat heddles may seem similar in many respects at first glance, but there are many differences which, if not visible to the eye, show up in final proving ground—the loom.

1 **Look at the warp eye—is it perfectly shaped for the yarn being woven?**

2 **Is it extra polished for extra smoothness, so that the most delicate yarn will not chafe or break?**

3 **Is the heddle rod slot of correct design so that the heddle rides freely without binding? This also insures longer heddle life.**

4 **Can the duplex heddles pass the straight-line test which is so important to this type of heddle?**

5 **Does it have the proper plating, so that the type of fabric woven will not be smudged?**

Weavers of all types of fabrics, from light rayons to heavy ducks, have found that, due to the proper design of Walker heddles, they have less chafing of yarns and fewer broken ends. This is due to the perfect uniformity and weight, size, smoothness and shape of the warp eye of these heddles.

The WALKER LINE

Includes Better —

HEDDLES

HEDDLE FRAMES

LOOM REEDS

Supplies and Accessories

WRITE FOR SAMPLES OF THE WALKER HEDDLES FOR YOUR PARTICULAR KIND OF WEAVING.

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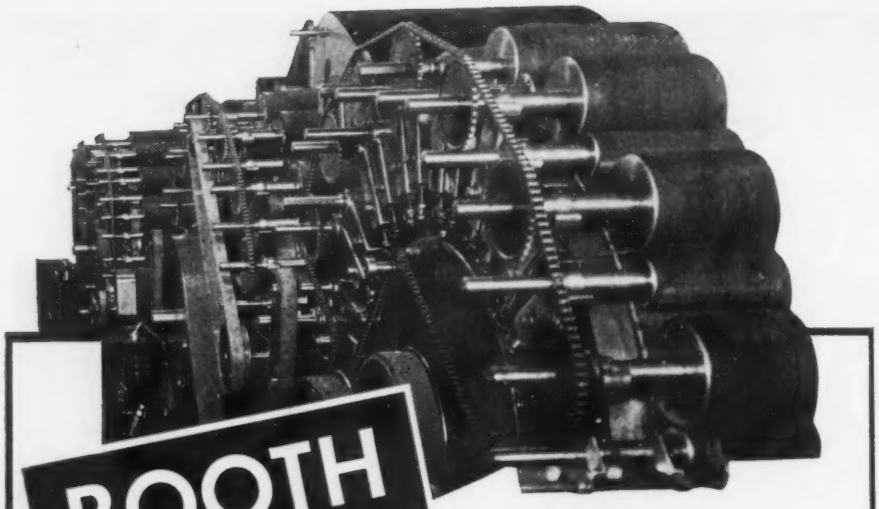
Hendrik VanBrederode ..... Midland Park, N.J.
Matthews Equipment Co. ... Providence 3, R.I.



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High-grade carders merit the best card clothing. All BOOTH card clothing has a firm fabric or leather foundation yet is fully flexible, which reduces the possibility of shelling out. It is available with rehardened points.

Write for full information and prices on the many items in BOOTH'S complete line.

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SOAPS

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The Textile Industries long have known that "Depend on DRAPER" has real signficance, for the users of DRAPER Dependable SOAPS are producing better cloth.

Write for a demonstration of DRAPER SOAP *quality.*

DRAPER SOAP CO.

DIVISION OF CONTI PRODUCTS CORP.

171 Front St. Tel. No. Perry 1806 Pawtucket, R. I.

during the few seconds intervening between the time the driving gears are engaged and the moment when load is applied to the specimen. No matter how carefully the operator inserts the sample in the jaws, there remain two factors, slack in the textile and backlash in the mechanism, which causes a shock-loading "bump" at the start of the loading cycle. Accordingly, when the pendulum is in the zero-load position, it holds closed the contacts of a limit switch and the motor is made to turn over at a very slow speed.

Now the operator engages the driving gears. Because the motor speed is thus throttled, the lower jaw moves downward at a very slow rate as backlash is taken up and slack removed. Soon the test specimen becomes taut and the pendulum begins to move. After approximately 3° of pendulum travel, the limit switch contacts open and the automatic rate-of-load control takes over. The transition is smooth, so that at no time is the specimen subjected to damaging shock load.

Spinning Room Maintenance

(*Continued from page 111*)

This may throw the spindle off slightly at the bottom. (We believe the reader will agree that it will be better to have the spindle slightly out at the bottom where the strain will not be so great than it would be if it were not properly centered at the top.)

After the spindles have been plumbed, the guides will have to be reset. Place the guide-set on the spindle; loosen the nut holding the guide and adjust the guide until the point of the guide-set just touches the back center of the guide. In running very coarse yarns, the setting of the guide might be neglected and the yarn will still run—after a fashion; but when running fine yarns, it is very important that the guide be properly set.

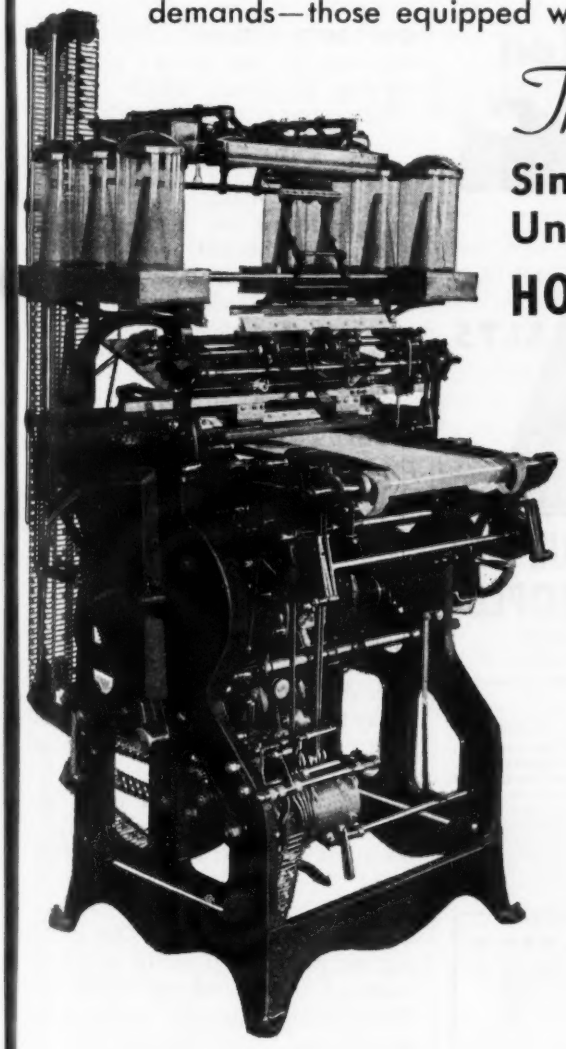
Another setting which must not be overlooked is that of the roving traverse. The stroke should be as long as possible to permit the roving to traverse as near the full length of the bosses of the top rolls as practicable, in order to distribute the wear over the greater part of the roll covering, rather than to traverse over a small part as would be the case if the roving traverse were set too short.

OILING AND CLEANING. It is not accidental that the terms oiling and cleaning are used together; for if it were possible to operate a spinning frame (or other textile machine) without having to oil it, the problem of cleaning would be greatly simplified. If the right amount of oil is placed in

WHEN THE

RETIRES FOR THE

the American woman will discover that she is about four years behind in her desire for sheer stockings. Certain hosiery mills throughout the country will have a decided advantage in the race to meet increased demands—those equipped with



The WILDMAN
Single-head, Single Unit, Full-Fashioned HOSIERY MACHINE

These machines are doing a wonderful job today, and saving precious minutes by knitting the entire stocking in one continuous operation—perfect from top to toe. No stops, no slowing down for plaiting or narrowing. They are meeting and defeating lost production hours every day.

★

Too bad that our volume of war work limits our production for civilian purposes to supplying repair parts. But Plan NOW for the reign of the Dove.

WILDMAN MFG. CO.
Norristown, Pa.

AMERICAN INDUSTRIES SALVAGE PROGRAM

FOR AMERICA—THROW YOUR SCRAP INTO THE FIGHT

Fits Army Fabrics for Global War . .

Fabrics that must meet the rigors of today's world-wide war, need every good characteristic that you can impart.

DRUMMOND SOAP

Gives fabrics a good start on their career for Army, Navy or civilian use. For DRUMMOND Soap Contains no filler of any kind . . . It's a high-body product of flow alkali lontent . . . It has a high binding quality that results in minimum flocking . . . Saves on stream and water because it rinses easily and completely . . . Better fulling and scouring . . . Leaves fabric perfectly clean with softest feel, better hand, brighter colors and whiter whites . . . Want to try it? Just write us today for a free working sample and test DRUMMOND Soap on your own goods.

Don't Sell America Short—BY MORE BONDS

Standard Soap Co. of Camden

205 South 2nd St.
CAMDEN, N. J.

G. TANGUAY
281 Harris Ave., Woonsocket, R. I.

Do people like you *instinctively?*

$1.75

Do you know how easy it is to exercise the qualities that impress people favorably, that lead them instinctively to give that extra ounce of loyalty, cooperation, and effort to your ideas and orders?

To win the rewards that beckon to leadership today, in all walks of life, you *must work with people*—get them to like you—get over your ideas to them—influence their thoughts and actions. And now a plain method of developing this ability—11 simple rules that successful business leaders follow—things that *you can start doing today, without study or practice*—are given in this new book.

THE TECHNIQUE OF HANDLING PEOPLE
By DONALD A. LAIRD
and ELEANOR C. LAIRD

Read what—

EUGENE G. GRACE, who became president of Bethlehem Steel at thirty-seven, says about observation;
WALTER A. GIFFORD, who became president of A. T. & T. at forty, says about listening to opinions;
CHARLES E. WILSON, self-made president of General Electric, says about wanting to get ahead;
WALTER D. FULLER, who advanced from selling copies of the *Saturday Evening Post* to presidency of the Curtis Publishing Co., says about Big Ideas to get ahead;
LOUIS RUTHENBURG, who became president of Servel at forty-six, says about the spirit of work.

The observation of these and many other important men of industry lend concrete evidence to back up the soundness of Dr. Laird's book. The book gives seasoned, practical advice on the technique of handling people and shows in quickly understandable fashion how to use the psychology of leadership.

How to understand and work with others

This readable, practical manual presents 11 pointers on what to do and say in your everyday contacts with others, in order to win their friendship, good-will, and cooperation. The methods are clearly demonstrated in numerous stories of real people, outstanding leaders, of today, and together form a direct, easy-to-understand, easy-to-use technique for improving your relations with others and especially for securing better results in training, directing, supervising, and other elements of successful leadership.

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Address .....
City and State .....
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(Books sent on approval in United States only.)

the bearing, and kept there, it wil help. Yet we all know that with th present design of frames and with th kind of help usually available for oil ing, this ideal is almost impossible t attain. These suggestions, if followed will help:

1. Use the correct oil or grease fo each type of bearing.
2. Use the proper oil can or gu for the lubricant, and see that they ar kept in good repair.
3. Make up an oiling chart based o the type of bearings, the speed of th frame, and the running schedule; an stick to it.
4. Use the best help available fo oiling.

Finisher's Machine Shop

(*Continued from page* 107)

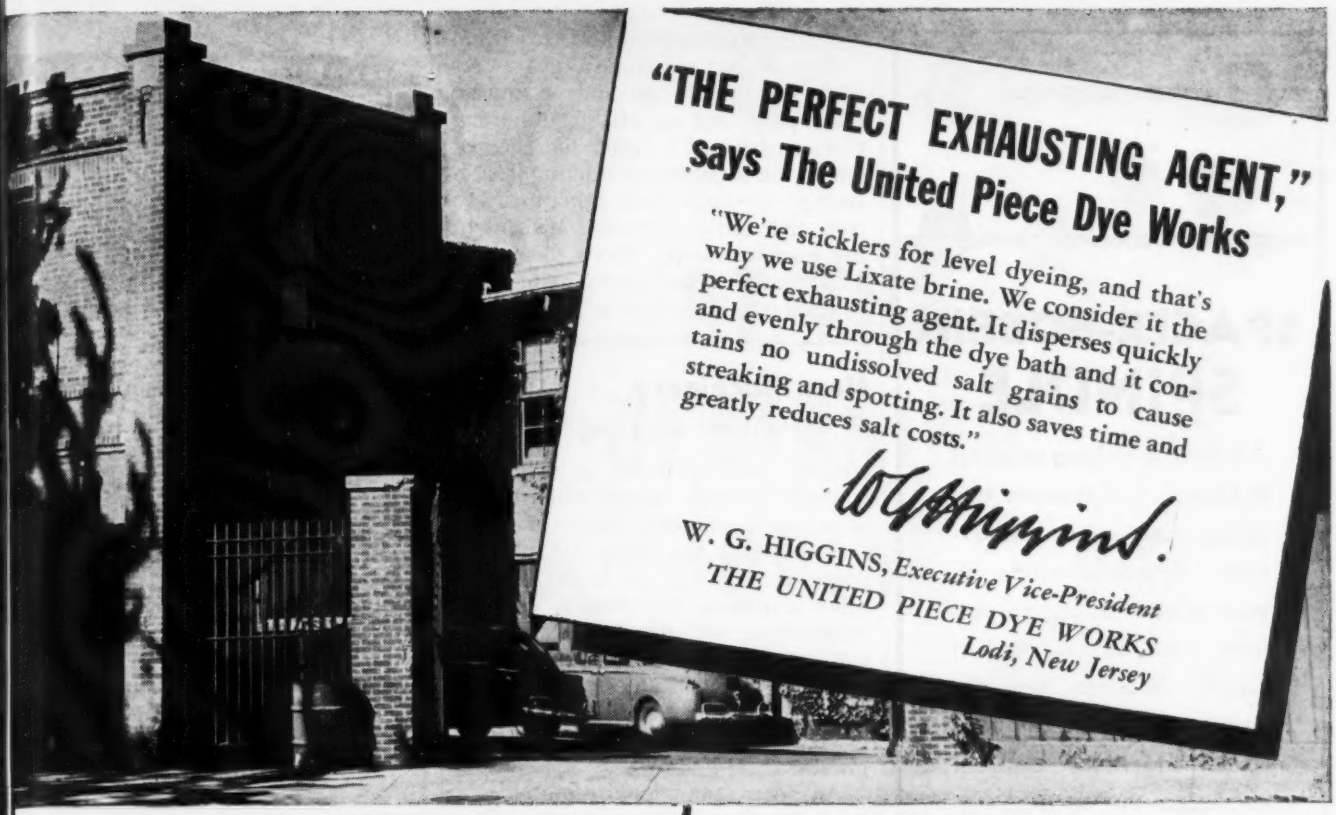
Parts that have been finished by th machine shop are sent to the supply room to be issued to the proper depart ment as needed.

COST DISTRIBUTION. All labor and materials for any job are changed to account numbers which represent either a special machine or department or account as required by the cost accounting system. These account numbers and the names of the accounts they represent are listed by department, and the list (see Fig. 4) is posted in the machine-shop office for convenience. Each plant foreman has a similar list to which he can refer for the charge number when writing a job requisition on the shop.

RECORDS. Other necessary records in the shop consist of the following:

1. A job requisition order form (*a* in Fig. 5) on which an overseer writes out the description of the work to be done.
2. A time card (*b* in Fig. 5) on which a worker lists starting and stopping time on each job handled during the day.
3. A materials requisition (*c* in Fig. 5) by which the shop foreman or clerk orders stock or materials needed for a job.
4. A cost distribution card (*d* in Fig. 5) on which the clerk lists all labor and materials for the cost department.

SALVAGING MATERIALS. An interesting and profitable phase of operation is centered in the salvage department. The personnel consists of one man in charge and two helpers, who go through the scrap piles, and salvage and sort all machine parts, castings, pipe, pipe fittings, metal, cloth bags, paper, boxes, and other materials that



"THE PERFECT EXHAUSTING AGENT," says The United Piece Dye Works

"We're sticklers for level dyeing, and that's why we use Lixate brine. We consider it the perfect exhausting agent. It disperses quickly and evenly through the dye bath and it contains no undissolved salt grains to cause streaking and spotting. It also saves time and greatly reduces salt costs."

W. G. HIGGINS, *Executive Vice-President*
THE UNITED PIECE DYE WORKS
Lodi, New Jersey

Why LIXATE BRINE is a perfect Exhausting Agent

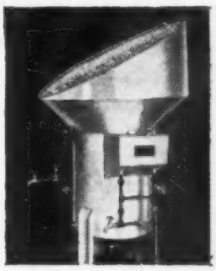
CRYSTAL CLARITY proves its freedom from undissolved salt grains. There are no areas of local over-concentration of salt to cause streaking and spotting of fabrics.

QUICK AND UNIFORM DISPERSION throughout the entire dye bath assures level dyeing due to even exhaustion of the dye. There can be no undissolved grains of salt which may fail to wash out, causing white edges.

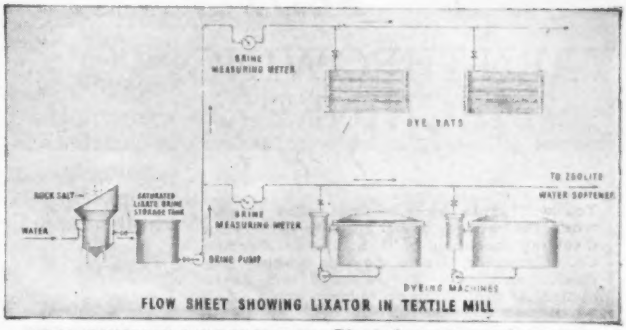
100% SATURATION facilitates accuracy in diluting to any desired brine strength.

COSTS ARE CUT because the Lixator *automatically* produces fully saturated brine of crystal clarity from *economical* Sterling Rock Salt. By eliminating salt waste due to handling, spills, and dissolution in storage...Lixate users report savings up to 20%.

"The Gateway to Quality"
UNITED PIECE DYE WORKS
at Lodi, N. J.



AT RIGHT YOU SEE the Lixator installed at the United Piece Dye Works. Numerous models and sizes are available to meet any space, any brine requirements. Custom-built Lixators are also supplied. No costly investment required.

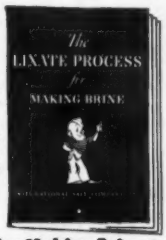


FLOW SHEET SHOWING LIXATOR IN TEXTILE MILL

FREE-FLOWING LIXATE BRINE—Flow sheet above shows a typical installation in a textile mill. Note that Lixate brine is piped to wherever it is needed to save the time and labor of transporting dry salt and mixing brine. In addition to its advantages in dyeing, it also regenerates zeolite water softeners more efficiently than ordinary brine.

SALTY SAYS:

Free Booklet Gives You All the Facts!
Explains the Lixate Process in complete detail and shows many Lixator installations which are cutting costs, increasing efficiency, and contributing to improved products in numerous industries. Also contains useful brine formulas and tables.



International Salt Company, Inc.
Dept. TW3, Scranton, Pa.

☐ **Send free copy of "The Lixate Process for Making Brine."**
☐ **Have your field engineer call.**

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*City*_____ *State*_____

The LIXATE Process

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for making brine

INTERNATIONAL SALT COMPANY, INC.
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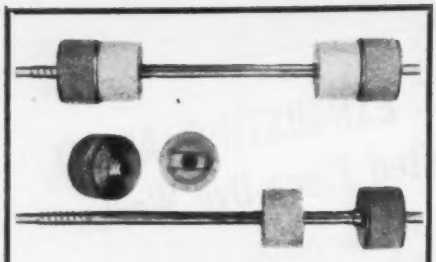


SPACER-BOBBIN SPINDLE

Adaptable to long or short bobbins . . . spacers are self-locking and removable. Spindles made to your specifications so you can use two different length bobbins on the same spindle, on the same machine, without changing the spindle.

Wayne Manufacturing Co.
Honesdale, Pa.
Manufacturers of Textile Mill Supplies

can with some reworking be used again.

Part of one warehouse area is set aside for the storage and sorting of these parts and materials. Anything that can be used is listed and charged out to the department ordering it, at a saving. Castings, gears, other machine parts that can be reworked are sent to the machine shop. From there they are returned to the supply room to be charged out as used parts.

New Machinery

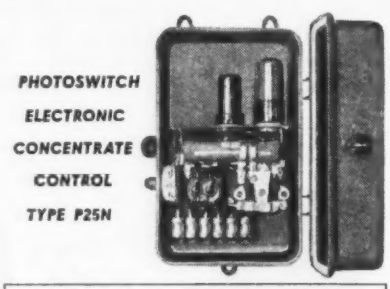
(*Continued from page 136*)

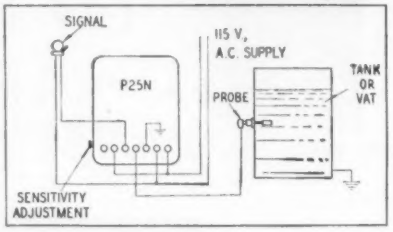
control housing is set so that the control relay will operate when liquid of a predetermined electrical resistance contacts the probe. While the probe is immersed in liquid of any other resistance, the control remains inoperative, but when a change in concentration alters the conductivity of the liquid to the necessary degree, the electronic control relay is energized to operate signals, valves or pumps.

An interesting application of this control is the detection of contamination in boiler condensate. It also may be used to control acid concentration in various operations, such as carbonizing.

Type P25N is also used wherever it is necessary to maintain an interface between two liquids differing even slightly in electrical conductivity. Electronic operation thus permits single or two-level control of one liquid within a tank, even though another liquid may be above or below it.

Type P25N has a sensitivity range of 100 to 5,000 ohms and operates on a 5% change in probe-circuit resistance. The predetermined resistance value for which the control is set remains fixed regardless of variations in line voltage or tube characteristics. The voltage applied to the probe never





Electronic device for controlling acid concentration (Photoswitch)

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eliminates
3 to 5 handlings

Bleach with HYPOCHLORITE Rinse and Use

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You will profit by planning today to use, when the war is over, the *improved* yarn throwing machines of U. S. Textile Machine Co. Currently, Uncle Sam is getting our production efforts. But research and development is continuing on a large scale. And when peace comes, these will be available to you—offering *newest*, most modern features.

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- U. S. JUMBO FACE DRIVE TWISTERS for large Headless Package work.
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- U. S. REDRAWS and Spoolers.

U. S. TEXTILE MACHINE CO.
SCRANTON, PENNSYLVANIA, U. S. A.

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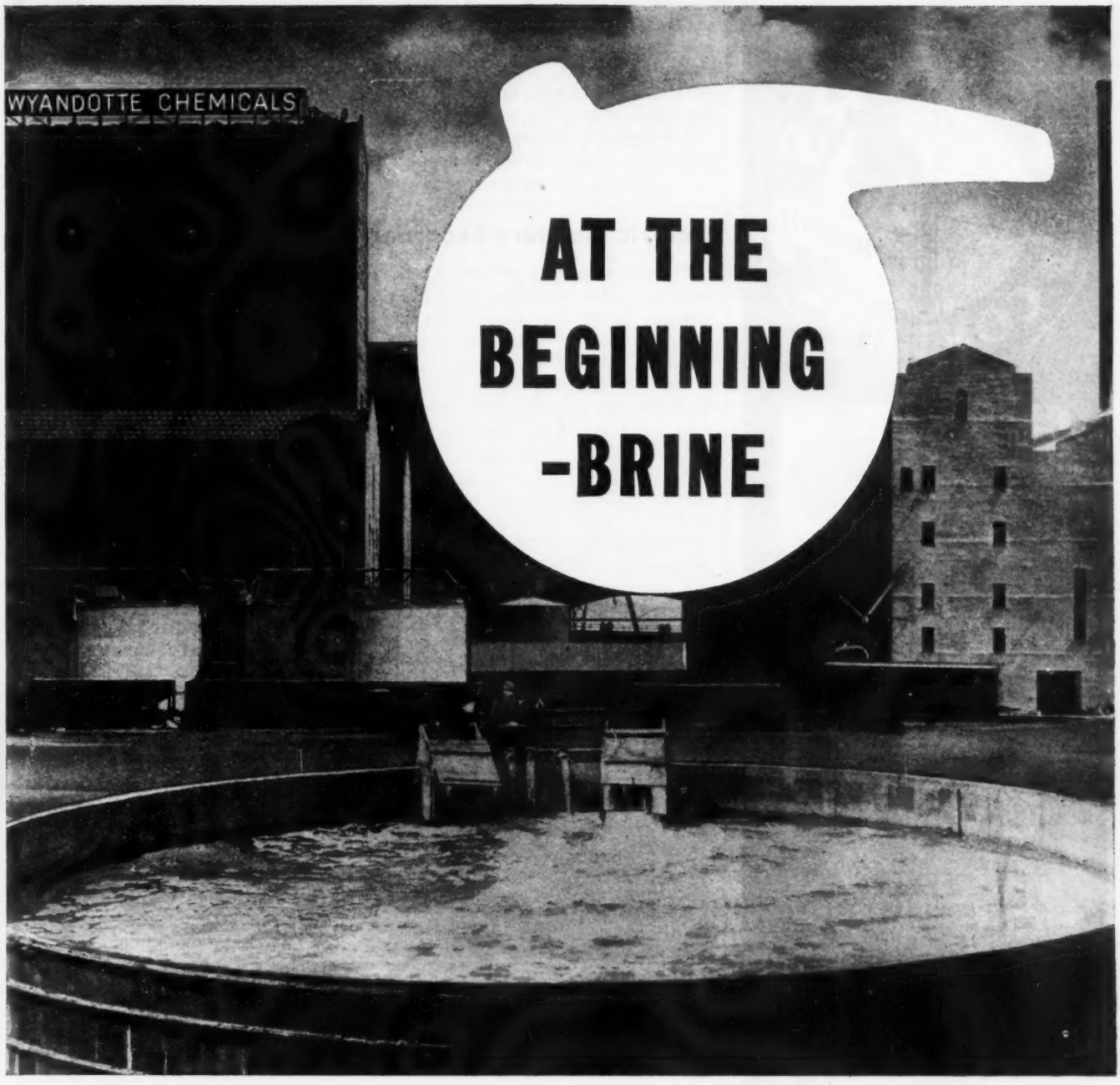

• Basic manufacturing material for the huge North Plant of the Wyandotte Chemicals Corporation at Wyandotte, Michigan, is salt brine. Into this storage tank it pours 24 hours a day every day in the year—from six wells some 1400 feet underground. Daily brine production of this one tank is in excess of 412,000 gallons.

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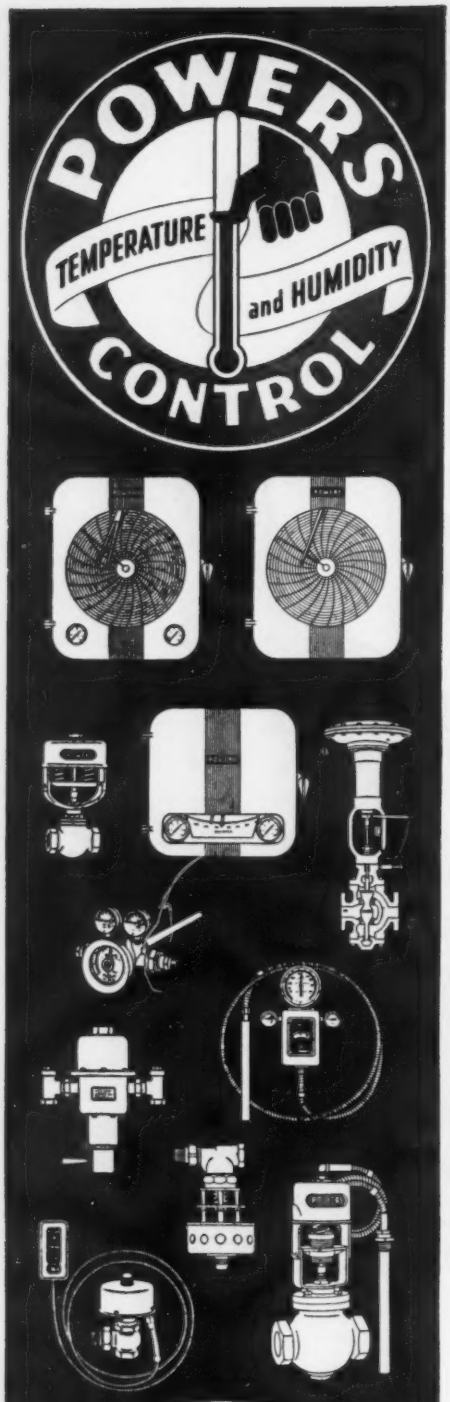

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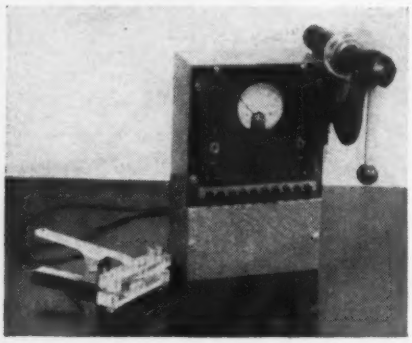
exceeds 25 volts, thereby eliminating any possibility of electrical shock or explosion hazard. Type P25N incorporates a single-pole, double-throw relay, rated at 10 amp., a c; 5 amp., d.c.; for normally closed and normally open operation, and requires a supply of 115 volts a.c., 60 cycles.

Electric Moisture Recorder

Development of a portable electrical instrument for measuring instantly the amount of moisture in a textile fabric is announced by Raymond S. Hart, Grand Central Terminal, New York.

This meter, according to the manufacturer, will gage instantly the moisture contained in the material while it is being processed. Range of operation varies from about 2% to above 25%. Accuracy of readings are to a fraction of 1%. Operation is simple, permitting any worker in the plant to use the instrument. While first developed for the paper industry, the present model represents modifications which permit its use by the textile industry.



Portable electric moisture tester which is used for determining moisture content of fabrics (Hart)

Properties of Wool Felt

(*Continued from page 91*)

to lubricate the fiber. In the case of lightly-fulled felts, warm water is used. The more dense, heavy-duty mechanical and glass-polishing hair felts are most readily fulled by the addition of a 40° Twaddell solution of sulphuric acid. Palm-oil soap in the proportion of 1 part to 10 parts of water is considered preferable for soft-finish pad and for millinery qualities. After treatment with the appropriate fulling agent, the felt is loaded in the mill, folded to a definite pattern to obtain uniform felting for controlled edgewise and lengthwise shrinkage.

Periodically, the felt is removed from the mill, pulled, and refolded to permit inspection and realignment of the pieces, as well as to prevent the formation of wrinkles or the felting together of adjacent surfaces. Fulling may be continued for periods of from 5 min. with lightweight felts to 12 hr. or more in the case of hard felts. Dimensional shrinkages attained by fulling, Fig. 1, approximate 10 to 20% for pad weights, 40% for back-check weights, and 75% for hard sheet felts.

After fulling, the felt is scoured to remove or neutralize residual soap, dirt, grease, or acid. It is then dyed, hydro-extracted, and tenter-dried under tension in a circulating hot-air dryer at a temperature of approximately 140° to 220° F. The felt is then ready for finishing and inspection. Felts for certain purposes are left in the rough as they come from the dryers. Others are pressed, sheared on the surface to remove long fiber ends, or, in the case of some of the harder grades, run through a drum sander. From the raw-stock bale to the roll of finished material or cut-part felt shipment, the process requires 7 to 10 days.

MECHANICAL AND INDUSTRIAL USES. Wool felt has a broad range of mechanical and industrial applications; automobile, farm-equipment, and aircraft industries are leading consumers of felt products.

Employed industrially as a friction material, felt provides traction and is used to polish surfaces. Also the capillarity of felt adapts it to an entirely different field of mechanical use. Large and small motor-armature shafts are lubricated by means of felt wicks, as are journal bearings, spindles, and other remote machine parts. Felt blotters remove excess pigment in several design reproduction processes, of which silk-screen printing is one.

Millions of ball bearings are protected from the ingress of dirt, grit, and moisture, or the leakage of oil and grease lubricants by means of felt seals.

Because of the versatile blend and distribution of selected fibers in filter felts, they are characterized by slow plugging rates and high retention efficiency. They are adapted to both gravity and pressure equipment.

Vibration isolation, cushioning, and padding are among the natural mechanical functions of wool felt. Felt mountings isolate precision instruments and machine tools from floor or building vibration, and, conversely, reduce the transmission of vibrations generated within a machine.

Felt is widely used as a surfacing material for the bases of movable equipment, such as telephones and electric-fans, providing non-skid and scratch protection for polished surfaces.

Due to its structure, felt is a highly efficient thermal-insulation and sound-absorption material. This combination of physical properties, plus ease of fabrication and low surface density, have led to its widespread use in trans-

Keep Dye and Fabric Quality Up with Hooker Chemicals

During World War I, there may have been some reason for the public to complain about color fading, and about fast dyes that *weren't* fast. At that time American dye manufacture was still an infant industry. With the advances that American dye and textile chemists have made since that time there is no reason for any quality deterioration in dyes or fabrics even during the war.

There is one way of making sure that your products will be up to pre-war standards. Use Hooker chemicals. Because of war's demands, you may not be able to get all the Hooker chemicals you need when you want them. However, the Hooker chemicals that are available are of the same uniform dependable high quality that has made Hooker the source of discriminating buyers.

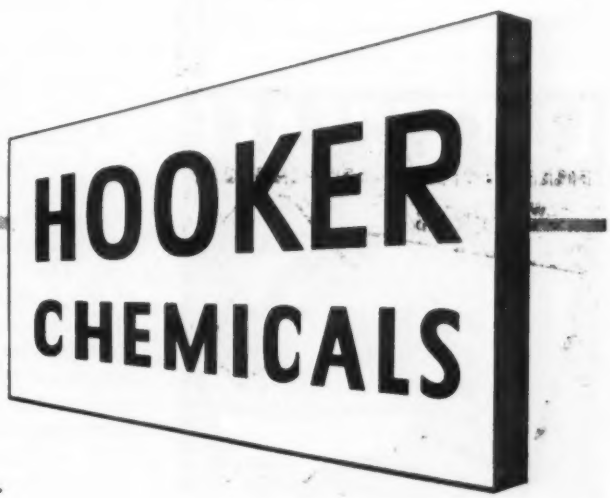
Many of your needed chemicals are still available in reasonable quantities and for prompt shipment. Some of the commonly used Hooker chemicals in the dye and textile industry are listed below. Other Hooker chemicals are listed in Bulletin 100, Hooker General Products List. Send for a copy.

PRODUCT Chemical Formula • Molecular Weight	DESCRIPTION	USES
Aluminum Chloride, Anhydrous $AlCl_3$; 133.3	Gray crystalline solid.	Catalyst; dye making.
Antimony Trichloride, Anhydrous $SbCl_3$; 228.1	Yellowish solid.	Catalyst, dye making; mordant in textile printing; moisture and fire-proofing textiles.
Benzoyl Chloride (Benzenecarbonyl Chloride) C_6H_5COCl; 140.5	Water clear liquid, soluble in ether, reacts with alcohol and water.	Highly active source of benzoyl group. Manufacture of benzophenone, benzyl benzoates, dyes and pharmaceuticals.
Cyclohexanol (Hexahydro Phenol) $C_6H_{11}OH$; 100.1	Clear, colorless liquid.	Solvent.
Lauryl Pyridinium Chloride $C_5H_5NC_{12}H_{25}Cl$; 293.4	Yellow gray semi-solid.	Cationic detergent.
Metanitrobenzoyl Chloride $C_6H_4NO_2COCl$; 185.5	Yellow to brownish liquid, partially crystallized.	Manufacture of dyes.
Monochlortoluene $C_6H_4Cl\text{-}CH_3$; 126.5	Clear, colorless liquid.	Solvent, dye intermediate.
Orthodichlorbenzene $C_6H_4Cl_2$; 147	Clear, odorless liquid.	Solvent, dye intermediate.
Paranitrobenzoyl Chloride $C_6H_4NO_2COCl$; 185.5	Yellow crystalline lump material.	Manufacture of dyes.
Sodium Tetrasulfide Na_2S_4; 174.23	Aqueous solution containing 40% by weight of compound. Dark red liquid.	Manufacture of sulfur dyes.
Sulfuryl Chloride SO_2Cl_2; 135.0	Light yellow liquid.	Chlorinating agent. Forms chlorides and anhydrides of organic acids.
Thionyl Chloride Refined and Technical $SOCl_2$; 119	Colorless to yellow or pale red liquid.	Chlorinating agent. Forms organic acid chlorides.

CAUSTIC SODA — **LIQUID CHLORINE**

MURIATIC ACID — **PARADICHLORBENZENE**

SODIUM SULFHYDRATE — **SODIUM SULFIDE**



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No. 3—Ideal for general oil type lubrication. Ring oiled bearings, wick feeds, sight feeds and bottle oilers.

No. 8—Because of its high film strength and long life reflects outstanding performance in most types of enclosed gears (speed reducers).

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No. 130-AA—Known nationwide as the superior lubricant for open gears, heavy duty bearings, wire rope, etc.

BALL BEARING—This is the LUBRIPLATE lubricant that has achieved wide acclaim for use in the general run of ball and roller bearings operating at speeds to 5000 RPM and temperatures up to 300 degrees F.

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port and military aircraft soundproofing and thermal insulation.

FUNCTIONAL PROPERTIES. Wool fibers are natural springs. Vibration isolation is consequently among the natural mechanical functions of wool felt. The effectiveness of any mounting is related to both the frequency of the vibration to be isolated and the natural frequency of the system or material employed. Loading beyond certain limits will result in excessive deformation, increased stiffness of the system, and decreased isolation benefit. Felts of S.A.E. F-11 density are most effective for unit loads of from 1 to 6 psi., S.A.E. F-6 density for loads of from 6 to 12 psi., and S.A.E. F-2 density for loads of from 12 to 35 psi.

Of practical interest is the result obtained in reducing vibration transmitted to a concrete floor by a C & K automatic "Cotton King" dobby loom. Readings taken with a Norton-Young portable seismograph before and after isolation with S.A.E. F-2 felt mountings of ¾-in. thickness showed a reduction in transmitted vibration of 70%.

Functional data accumulated on the wear resistance, oil absorption, capillary flow, thermal conductivity, and coefficients of friction and sound absorption of S.A.E. felts are given in Table II, from which the following facts are to be noted:

1. The wear resistance of wool felt is in direct proportion to density and fiber quality, and in inverse proportion to applied load.

2. The coefficient of friction of felt is, for all practical purposes, independent of density or S.A.E. grade, but highly dependent upon the texture and smoothness of adjacent surfaces, as well as the viscosity of associated lubricating oils.

3. The oil-absorption capacity of the lower density felts is proportionately greater than that of the higher density felts, as evidenced by a 200% greater retention capacity for S.A.E. F-15 than for S.A.E. F-1.

4. The wicking rate of wool felt is dependent on fiber quality, felt construction, density, and oil or fluid viscosity.

5. The thermal conductivity of wool felt is notably low and decreases with decreased felt density. Combinations of kapok fiber with wool produce lightweight insulating felts of 0.21 K factor.

6. The sound-absorption efficiency of felt is dependent on variable factors of fiber blend, felt density and construction, and air permeability. Combinations of kapok fiber with wool produce felts of 0.80 sound-absorption coefficient at 512 cycles per sec. and 0.70 noise-reduction coefficient for 1-in. thickness.

News of the month

Numerous Meetings Cancelled. To conform to wartime restrictions there will be no annual meeting of the American Association of Textile Chemists & Colorists in 1945. The usual inter-sectional contest, however, will be held although details are still incomplete. The National Association of Hosiery Manufacturers has postponed its usual industry-wide conference. The Underwear Institute has cancelled its annual meeting this spring. The Southern Textile Association has abandoned its spring sectional meetings, but will issue a news periodical. North Carolina Cotton Manufacturers Association reports that it has no plans for a meeting in 1945, but will recheck if travel eases. The Carded Yarn Association has suspended meetings. The American Cotton Manufacturers Association has filed application for permission to hold an executive-session meeting in Atlanta on April 25.

Another Wage Step. War Labor Board on Feb. 20, ordered a minimum wage of 55¢ an hour for 50,000 northern and southern textile workers, under its authority to correct substandard wage rates. The order provides an increase of at least 5¢ an hour for all workers affected. WLB stayed the effectiveness of these decisions until a further order which may come after solution of problems resting in the hands of the Director of Economic Stabilization.

Regional Research Meetings. Textile Research Institute will present a series of reports on current textile research at regional meetings to be held in April at textile mill centers in several states. The meetings are designed for mill engineers and technical men in the local areas in order to meet the ODT's requirements on travel. Places and dates are: Georgia Tech., Atlanta, Apr. 9; Cleveland Hotel, Spartanburg, S. C., Apr. 11; N. C. State College, Raleigh, N. C., Apr. 14; Philadelphia Textile Institute, Philadelphia, Apr. 26. The research papers include "Abrasion Test for Textiles", by Dr. A.

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AMMONIUM CHLORIDE • CAUSTIC POTASH
MODIFIED SODAS • AMMONIUM BICARBONATE
SODIUM NITRITE • PARA-DICHLOROBENZENE
CALCIUM CHLORIDE • CHLORINE • SALT
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Paints for Industry

C. Walker; "Methods of Increasing the Productivity of Cotton Cards", by Elliot B. Grover; "Practical Applications of a New Analysis of Equilibrium Regain Data for Textile Fibers", by John C. Whitwell; "Infra-Red Drying of Textile Materials", by Richard H. Wilhelm.

Revise Duck Dyeing Specification. At the request of the Quartermaster General, Research and Development Branch, a meeting was held recently in the rooms of the Association of Cotton Textile Merchants of New York with representatives of finishers of cotton duck to review a proposed revised specification for the dyeing of duck. This specification will incorporate the requirements for vat, mineral, sulphur and resin-bonded pigment dyeing of cotton duck and tent twill. At the present time there are four separate specifications for these processes which will now be incorporated in a single specification. Various problems connected with finished width and elongation, and specification for water resistance were discussed.

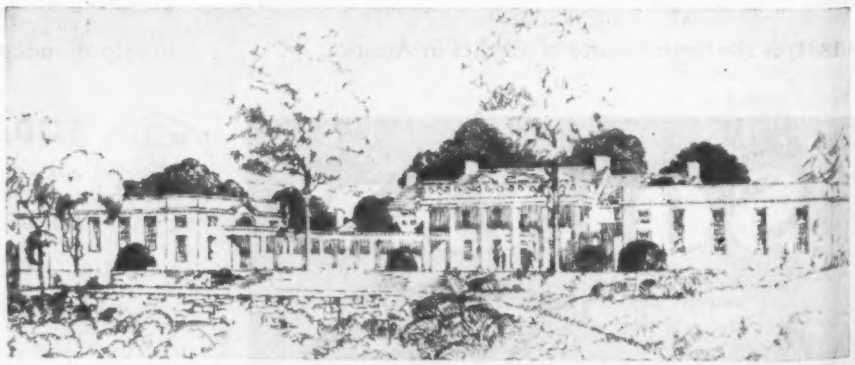
Flammable Clothes Barred. California has made it "unlawful to manufacture, sell, or offer for sale . . . . wearing apparel, cloth, drapery, or other fabric or material, made from or containing any synthetic fiber which is wholly or in part made from or contains any hazardous, explosive, or other substance in sufficient quantity so as to make such a fabric or material more highly inflammable than cotton cloth in its natural state." The law is in effect now. Its influence on textiles in California has not been definitely ascertained. It is believed to be the outgrowth of the movement by city councils such as at Sacramento, to incorporate the same prohibitions following the report of "highly flammable" garments.

Honors Past Presidents. Atlanta Textile Club president Louie Lynch presented handsome silver mounted gavels on behalf of the club to the six past presidents at the regular January meeting held in Atlanta Jan. 8. Mrs. Kate McGinty accepted in behalf of her husband, the late J. Harry McGinty. Others receiving the tokens were: Garnett C. Robey, R. A. McKay, H. C. Allen, Jr., W. M. Babcock, and William I. Hudson, Jr.

1945 Maid of Cotton. Miss Jennie Erie Cox, of West Point, Miss., has been chosen 1945 Maid of Cotton at Memphis, Tenn. She will tour America as the representative of the National Cotton Council, the Memphis Cotton Carnival Association, and the cotton exchanges of New York, New Orleans, and Memphis.

Riegel Establishes Laboratory. Riegel Development Laboratories, New York, have been established by Riegel Textile Corp., Ware Shoals Mfg. Co., and Ware Shoals Bleachery, to coordinate their research and development activities. J. F. Warner is president of the laboratories whose headquarters will be at 342 Madison Ave., New York 17.

Louisville Research Institute. The trustees of University of Louisville, Louisville, Ky., has established a nonprofit corporation, The University of Louisville-Institute of Industrial Research. The purpose of the institute is to engage in engineering and scientific research for industrial and private clients on a contract basis.



THE BUILDING PROGRAM of the Institute of Textile Technology, Ward Delaney, president, has been approved by its Board of Trustees. The present office and laboratory are housed in the 16-room residence and 6-car garage of the permanent home to which the institute has just moved, located near Farmington, 1½ miles west of Charlottesville, Va. The tentative building program contemplates erection of laboratory buildings in two rows facing each other across the formal gardens behind the residence, which will then be the administration building. Boxwood, former home of W. Alonzo Rinehart, as shown above, will be symmetrically flanked by the library on the west and the lecture hall on the east. The applications building at the rear of the group will be equipped with modern textile machinery. Organization of this Institute was described in detail in May, 1944, TEXTILE WORLD.

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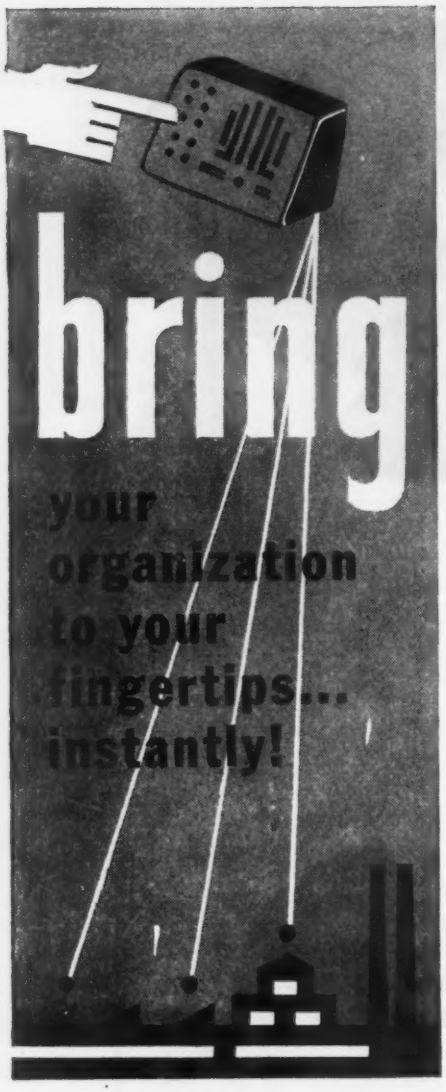

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Chicopee Research Division Reports on Activities

Contributed by the Division

This report of the 1944 activities of the Research Division of the Chicopee Mfg. Corp. is presented here to supplement to the section on research in the February Review and Forecast section as an outstanding example of the scientific approach that is needed to elevate textile technology. The report does not include the work of the Chicopee Company as a whole but does cover practically all of the items of interest to other research organizations in this field.—Ed.

Spinning Test Method.

On a 60-spindle sample frame located in its own air-conditioned room a method of spinning-end breakage analysis has been evolved which determines each of the various reasons for spinning-end breakage with relative accuracy. It is possible to segregate the breaks due to the operation of the spinning frame as contrasted with those due to defects in the roving as delivered to the frame; those due to trash in the roving from those due to improper fiber arrangement in the roving; those due to thin spots from those due to slubs; and the like. One particular discovery has been that only a small number of broken ends are due to straight breakage of the spun yarn under the tension of the balloon.

Effect of Temperature on Spinning.

Using the method of spinning end-breakage analysis just described, the 60-spindle frame was operated over a period of nearly a year during which the atmospheric conditions were varied through a complete range of humidity values and temperature values, using all combinations. The effect of humidity was that usually encountered in mill spinning rooms, and in addition very marked and different trends of the different types of end breakage (i.e., those due to roving, roll laps, slubs, flying lint, etc.) were found with respect to humidity variations. In contrast to this, the effect of temperature was essentially negligible, within the range of 65° to 90° F. on 30s warp yarn. An important conclusion from this is that the installation of air conditioning employing cooling cannot be expected to give a return in the form of better running work, but rather must be justified from the standpoint of improved employee working conditions.

Card Sliver Irregularities.

An article entitled "The Evening Action of the Cotton Card" was contributed by the Research Division staff and published in Textile Research, January, 1944. This covered work in which a specially prepared uniform lap was fed into a card at a varying rate to simulate irregularity in lap weight. The sliver produced was evaluated in the Saco-Lowell Sliver Tester and the percentage standard deviation (coefficient of variation) of the sliver was compared with the equivalent percentage standard deviation of the lap. With short wave length irregularities in the lap, particularly those below a half inch, practically no irregularity was reproduced in the sliver; while at long wave lengths, above 8 in., practically all the irregularity was reproduced. At intermediate wave lengths the transmissions of the irregularity was partial.

Card Sliver Weight After Stripping.

An article entitled "Effect of Stripping on Card Sliver Size" was contributed by the Research Division staff and published in Textile Research, November, 1944. This covered a brief series of experiments on the length of time required to run out card sliver after stripping a cotton card, and illustrated the use of special chart speeds on the Saco-Lowell Sliver Tester in this type of work. This forms one of a series of articles planned on the use of the sliver tester, the modifications of the sliver tester charts, and the method of reading these charts.

Study of Alkaline Extraction.

An empirical study of the extraction of impurities from cotton by means of aqueous alkaline solutions was studied as a basis for the usual kier boiling operation. A wide range of combinations of the three ingredients—water, cotton, and sodium hydroxide—was covered, and the total removal of impurities and other pertinent factors were measured. The results will be used in a critical study of current plant practice and also in evaluating

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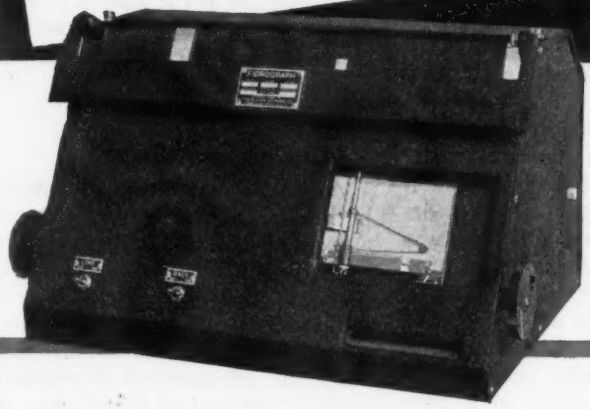

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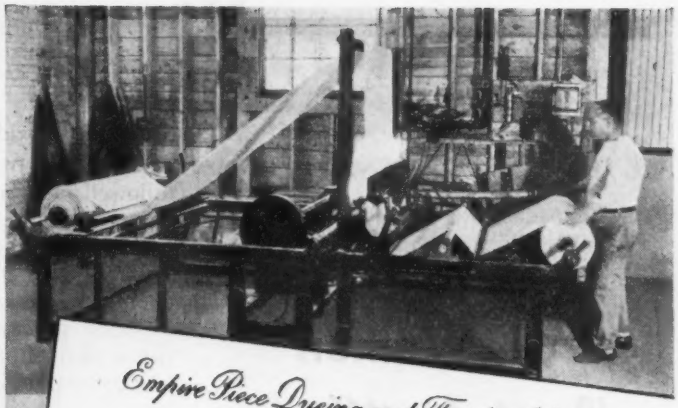

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Paterson, New Jersey

Carbomatic Corporation, January 24, 1945
1775 Broadway,
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Gentlemen:

In reply to your letter of January 18, 1945 we wish to advise that we are perfectly satisfied with the results obtained since installing Carbomatic burners on the Singer and Palmer. The singer operation has been stepped up approximately 100 percent; the palmer operation has been stepped up approximately 50 percent. Generally, the results are very good not only from a standpoint of increased yardage but also a more thorough drying job. This equipment has been in operation now for the past several months and we are quite confident that present figures are permanent.

Very truly yours,
EMPIRE PIECE DYEING AND FINISHING COMPANY
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In Canada: Canadian Textile Engrg. Ltd., 980 St. Antoine St., Montreal, P.Q.

Only 1 in 5 Are Women in *Alabama* Industries

IF you are making postwar plans to move your sewing or your knitting mill to a location offering the best in manufacturing advantages, these figures will have significance for you. Taken from the Census of Manufactures they show the great preponderance of men over women workers in Alabama industries. They fairly reflect the great reservoir of women labor now available for textile employment:

Wage Earners in Manufacturing—1939

State	No. Males	No. Females	Ratio—Males to Females
Alabama	101,569	24,646	4.12:1.00
Connecticut	175,394	75,795	2.32:1.00
Georgia	112,417	59,668	1.88:1.00
Illinois	482,618	160,900	3.00:1.00
Massachusetts	333,053	162,535	2.07:100
New Jersey	314,811	155,843	2.02:1.00
North Carolina	185,158	100,575	1.85:1.00
Pennsylvania	618,212	243,988	2.80:1.00
Tennessee	98,712	42,887	2.30:1.00

In many mills in Alabama, women workers are making outstanding production records because of their superior intelligence, their adaptability to textile pursuits. War plants, too, have used hundreds of women on sewing operations and they are now skilled workers.

Other favorable factors include the availability of skilled mechanics for maintenance and repair; abundant low-cost power and cheap fuels; the rapidly expanding markets in the Southeast; favorable tax laws, and the cordial and co-operative attitude of government and communities.

Specific confidential studies will be made for prospective sewing and knitting industries on request. Write Dept. T, ALABAMA STATE CHAMBER OF COMMERCE, Montgomery 1, Alabama.

ALABAMA
STATE PLANNING BOARD
Montgomery 5, Alabama

the new continuous-bleaching processes as compared with conventional-batch processes.

Study of Peroxide Bleaching.

The work on alkaline extraction was followed by a similar series of experiments to study the effect of peroxide in the bleaching of cotton, and also some of the effects of the auxiliary chemicals necessary to control the peroxide process. The application of this work is similar to that of the alkaline extraction project.

Oxidation of Cellulose.

It is commonly accepted that accidentally included air in a boiling or bleaching process may result in oxidation and consequent damage to the goods. To investigate this phenomenon quantitatively, an experiment was devised in which atmospheric air was passed through a boiling or bleaching chamber, and the resulting degradation of the goods was analyzed. The results indicate that while damage is perfectly possible under certain conditions, it will not occur in a conventional-batch process as long as the goods are thoroughly wet out and there is an ample excess of liquor present.

Flow Through Kiers.

Exploratory work was done on the elements controlling the flow of liquor through the conventional kier. These included a study of the seepage of liquor between the goods and the walls of the kier which tends to bypass the goods; an examination of the expansion and contraction of the mass of goods under the effects of moisture, pressure, and temperature; and some preliminary work on the flow through goods piled in various ways. This work showed the problem to be so complex that it was not desirable to carry the project through to completion at the present time, but rather to devote attention to the newer bleachery processes.

Kier Piler.

A kier piler which had previously been designed and tried out in model form was made ready for actual construction and steps were taken for patent protection on it. The design involves a piler which will handle light weight goods at high speed without water, and which therefore avoids the damaging effect of water on the light constructions.

Behavior of Moving Cloth.

An article entitled "The Dynamics of Flowing Cords" was contributed by the Research Division staff and published in Textile Research, April, 1944. In this, the theoretical equation for the behavior of moving cloth in continuous form, either as a rope or in open width, was developed for ten distinct cases including passage around various types of guides, hauling drums, etc. One case covered the action of the kier piler in which the cloth is projected by the piler to the remote parts of the kier; and original mathematical equations were developed for handling the design of such a device. Practical figures were given for the height of drop required at the various piling and hauling devices for cloth traveling at various speeds encountered in bleachery practice.

Air Conditioning.

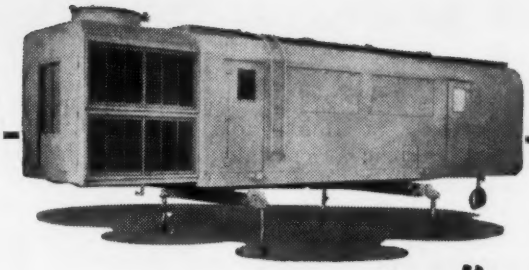
A thoroughgoing investigation of both the engineering and economic aspects of air conditioning as applied to textile mills has been initiated. One phase of this, namely the effect of temperature on spinnability, has already been listed. Additional phases cover the effectiveness of evaporative cooling, the cost of refrigerative cooling, the effectiveness, cost, and operating feasibility of various types of distribution systems, and the relative wage levels to be expected under various temperature conditions. This work is being carried on with experienced concerns in the fields of mill construction, air conditioning, humidification, etc., serving as consultants to the research staff.

Electrostatics.

A compilation of basic theories underlying known electrostatic phenomena has been carried out by a member of the physics staff of the University of Tennessee in the capacity of a consultant, and important gaps in the existing mathematical theory have been filled in by him. This work will serve as a text on which to base further projects on the elimination of the electrostatic troubles in textile mills and the utilization of electrostatics in manufacturing processes.

Vibration in Testing Machines.

An article entitled "Vibration in Textile Testing Devices" has been published by the staff in Textile Research, March, 1944. This article, originally presented as part of the report of the vibrations committee of the textile division of the ASME at its meeting in New York in 1943, covers a study of the operations of the Saco-Lowell sliver tester, the Belger roving tester, and the Scott tensile tester, and outlines alterations made to permit the operation of two of these devices at



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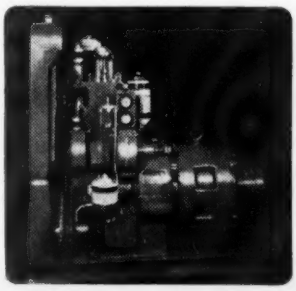

5 KW Model 7 Sheppard Diesel Generating Set used as a standby for lighting in and around the 600 KW portable power plant shown above. 4" bore x 5" stroke; single cylinder; rated at 8 HP at 1200 RPM; variable speed governor control with 4% regulation; simplified Sheppard Fuel Injection System.

If there are times when *your* power requirements are below normal, take a tip from the Navy. Cut operating and maintenance costs. Install a Sheppard Diesel Auxiliary Generating Set. It provides low-cost electricity ... low-cost power ... because it operates efficiently on the cheapest fuel obtainable. A limited number are now available. Let us advise you how to obtain WPB approval. Mail coupon for free literature today.

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speeds many times higher than was originally possible.

Salary Scales.

After a study of existing scales of professional salaries a formal scale for the research division was adopted. This scale was based directly on the U. S. Civil Service scale, and drew on both the wording of the requirements of the various grades and on the salary figures for these grades. Minor changes in wording were made to insure completeness, and the actual salary figures were slightly adjusted to obtain even figures and to insure a break between grades at the point where jurisdiction is transferred from the WLB to the Treasury Department. This scale has the advantages of being similar to that of a large group of professional men with whom we are in contact, of being conservative and with good possibilities of stability in the post-war period, and of being based on a government scale applying to a large group in the local area.

De-Ionized Water Reduces Variables

(*Continued from page 121*)

amount just as do all the other impurities in the raw-water supply?

Note in the graph shown in Fig. 1 the wide fluctuations in hardness in the Schuylkill and Delaware River water supplies at Philadelphia throughout the year 1929. A similar graph would show similar fluctuations in alkalinity, in sodium-chloride content, and in all other dissolved solids.

WATER-SOFTENER LEAVES SODIUM SALTS. With a zeolite water-softener system regenerated with common salt, all of the calcium and magnesium is removed from the water by base exchange so that there is no danger of the calcium and magnesium consuming vast amounts of soap, causing dye splotches or resists, etc. Regardless of variations in the raw water, all of the calcium and magnesium is removed, but by the zeolite process of base exchange there is placed in the softened water a chemically-equivalent amount of sodium salts, and the amount of these sodium salts varies with the variations of calcium and magnesium in the original raw water supply.

The conventional zeolite process operates as follows:

$$\left.\begin{matrix} Ca(HCO_3)_2 \\ Mg(HCO_3)_2 \\ CaSO_4 \\ MgSO_4 \end{matrix}\right\} + Na\text{-}Zeo = \left\{\begin{matrix} Ca\text{-}Zeo \\ Mg\text{-}Zeo \end{matrix}\right\} + \left\{\begin{matrix} NaHCO \\ Na_2SO_4 \end{matrix}\right.$$

Hardness salts usually found in water — Zeolite regenerated with salt ($NaCl$) — Calcium and Magnesium Zeolite — Sodium bicarbonate, Sodium sulphate

From the above equation it is evident that the water is softened by the zeolite process, or freed of calcium (Ca) and magnesium (Mg), but it still contains soluble sodium (Na) salts which often vary daily in amount.

What does this mean? Let's take

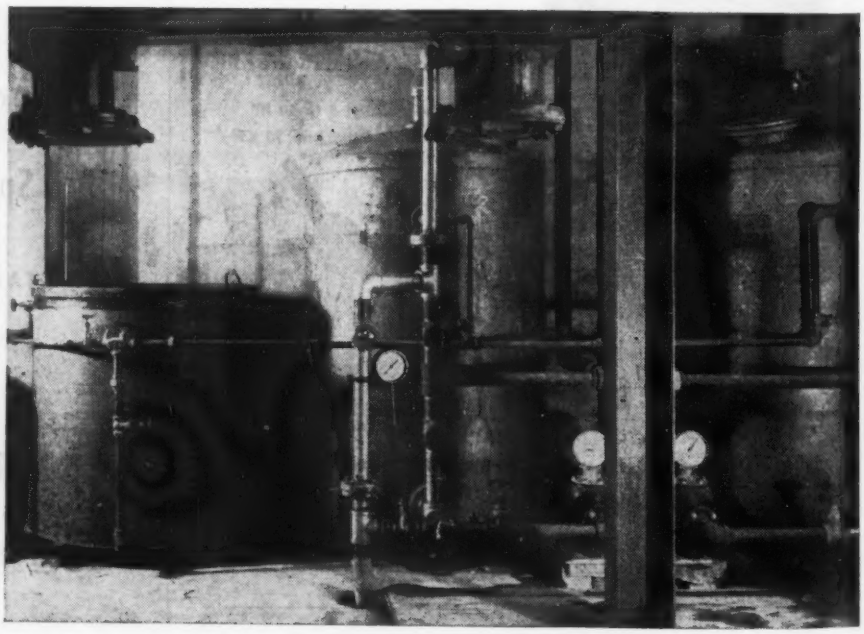

Fig. 3. A 3,000 gal. per hr. installation of the ion-exchange machine for producing de-ionized water.

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DuraBeau helps to assure lasting loveliness—and adds immensely to the service life of milady's wardrobe.

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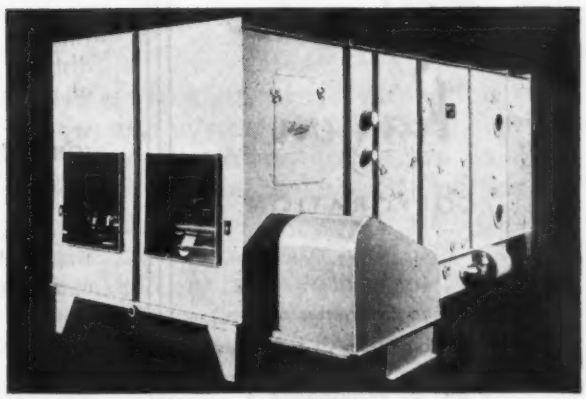
Recently developed for Industry, the Buffalo Wet Glass Cell Air Washer provides exceptionally clean, warmed or cooled air, as required. It removes dust, pollen, soot and other air-borne particles, requires no expensive electrical hook-up, lasts indefinitely.

If you are planning air conditioning be sure to get full details and cost of this modern air conditioning unit. Ask for Bulletin 3457 for complete data.



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Philadelphia water as a basis. On Mar. 1, for example, the alkalinity in the water caused by the presence of carbonates of calcium and magnesium might be 50 ppm. This water, passed through a hosiery dyer's zeolite water-softener, would come out with all of the calcium and magnesium removed by the softener, but instead it would contain 50ppm. of bicarbonate of soda. Then on Jun. 1, spring rains have ceased, the river becomes low, the city water supply is harder with alkalinity, increased to about 100 ppm. Still the hosiery dyer's zeolite softener removes all of the calcium and magnesium from the water, but now that zeolite-softened water is twice as alkaline, containing 100 ppm. of sodium bicarbonate. The hosiery dyer is in the meantime trying to get a uniform job done with a water supply which has varied 100% in analysis in the short space of two months, and he is having plenty of trouble getting a uniform job done. This increase in dissolved salts referred to is only the alkalinity. All of the other dissolved salts in the water have increased likewise during the two-month period.

How often we all have seen a mill superintendent wringing his hands and pulling his hair, blaming first this and then that, first Joe and then Jack, then his dyes, then his supplies, all because of his inability to get a uniformly standard product. Once in a while we will find one who thinks it might be his water supply, but "How could that be when I have a fine filter plant and a fine softener plant producing clear, 100% soft water?" Once in a while we will find one who longs for the time when he might use distilled water at various critical points in his processing operations, but knows that this is only wishful thinking since distilled water is worth several dollars or more per thousand gallons.

ION EXCHANGE. Today ion-exchange machines (Figs. 2 and 3) are available which reduce the dissolved salts, other than the slightly ionized silica, to less than 10 ppm., and produce water equivalent to single-distilled water at from one-tenth to one one-hundredth of the cost of distilled water.

These machines resemble and operate like two conventional zeolite water-softeners connected in series so that the effluent from one unit goes directly to and through the other. One unit, a cation exchanger, regenerated with acid, removes all of the bases—calcium, magnesium, sodium, potassium, iron, and manganese; while the other unit, an anion exchanger, regenerated with alkali, removes the acids including the chlorides, carbonates, sulphates and nitrates. Thus with this one machine there is physically taken out of the water everything in it excepting whatever small amount of silica might chance to be present in the original raw water supply.

The cation exchanger reactions during operation are as follows:

$$\left.\begin{matrix} Ca(HCO_3)_2 \\ Mg(HCO_3)_2 \\ NaHCO_3 \\ CaSO_4 \\ MgSO_4 \\ Na_2SO_4 \\ CaCl_2 \\ MgCl_2 \\ NaCl \end{matrix}\right\} + H\text{-Zeo} = \left\{\begin{matrix} Ca\text{-Zeo} \\ Mg\text{-Zeo} \\ Na\text{-Zeo} \end{matrix}\right\} + \left\{\begin{matrix} H_2CO^* \\ H_2SO_4 \\ HCl \end{matrix}\right.$$

Salts customarily found dissolved in water

Cation exchanger after regeneration with HCl (hydrochloric) or H_2SO_4 (sulphuric) acid

Note: All cations, even the Na combine with cation exchanger

Carbonic acid* Sulphuric acid Hydrochloric acid

*($H_2CO_3 = H_2O + CO_2$) Weak carbonic acid = water and free carbon-dioxide gas which may be removed from water by degasification or heating.

The anion exchanger reactions during operation are as follows:

$$\left.\begin{matrix} H_2CO_3 \\ H_2SO \\ HCl \end{matrix}\right\} + OH\text{-Zeo} = \left\{\begin{matrix} SO_4\text{-Zeo} \\ ClZeo \end{matrix}\right\} + H_2O + CO_2$$

Effluent from cation exchanger

Anion exchanger after regeneration with weak $NaCO_3$ (soda ash)

De-ionized water + CO_2

These ion machines are relatively inexpensive, easy to operate, and produce the equivalent of single-distilled water at an extremely low cost. For example, in Philadelphia, it costs between 5 and 10¢ to de-ionize completely 1,000 gal. of city water. In New England the cost of de-ionization is approximately 4¢ per 1,000 gal.; in New York City about 3¢; in Charlotte, N. C., about 4¢; in Chattanooga, Tenn., about 10¢.

It is believed that the future holds great promise for de-ionized water in many branches of the textile industry, particularly where the utmost in purification is desired but where in the past the high cost of producing distilled water made its extensive use prohibitive. There are innumerable places, both in the laboratory and out in the plant, where de-ionized water can and will be advantageously used immediately after the War, when critical materials of construction again become available and the necessary machines can be manufactured.

STENCILED SHIPMENTS INSURE FAST HANDLING

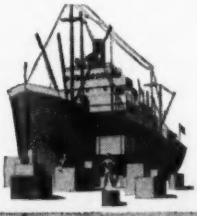
STENCIL MARK YOUR SHIPMENTS

CLEAR, EASILY READ, PERMANENT STENCILED ADDRESSED SHIPMENTS move through the Shipping Room faster and are speeded all along in transit.

THESE NEW DIAGRAPH-BRADLEY FOUNTAIN STENCIL BRUSHES . . . each represent major advancements in stencil brush design and efficiency . . . featuring: STURDY ALUMINUM CONSTRUCTION • LIGHT WEIGHT • LARGE FENDER GUARD to prevent ink on bristles getting on table, clothing, etc. • LARGE INK CAPACITY • ALWAYS READY FOR USE. THE PENACTION FEED* operates like a fountain pen • THE SIDE BUTTON STREAMLINER* is controlled by a diaphragm valve • CAN'T LEAK.

*Pat. App. For

Railroads and Truckers now recommend STENCILING. See: Revised Marking Rule No. 6 revised to include the following "Each package must be stenciled or otherwise plainly marked."



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- D-B INKS
- D-B STENCIL BOARDS
- D-B FOUNTAIN STENCIL BRUSHES
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COMPLETE SHIPPING ROOM SUPPLIES

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Distributors in Principal Cities

See Your Telephone Directory—Classified Section Under STENCIL CUTTING MACHINES

WORLD'S OLDEST AND LARGEST MANUFACTURERS OF STENCIL CUTTING MACHINES

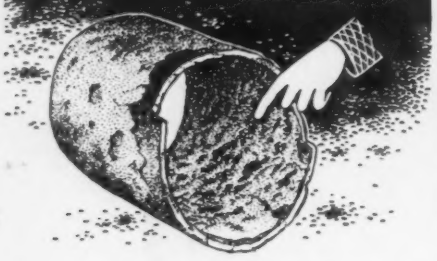
Double Duty for COTTON BAGS on the Home-front!

A new 1945 advertising and promotion program is now under way to encourage sewing with cotton bags received in homes as containers for food and feed. The 1944 edition of the instruction booklet, "Bag of Tricks", attained distribution of more than one million copies. The 1945 revised edition is being offered through advertisements in farm papers, home economics magazines and teacher publications, having more than 10,000,000 circulation.

This program not only is serving to keep women of the nation cotton-minded, but is also helping to bridge the war gap of cotton fabric shortage for home sewing.

NATIONAL COTTON COUNCIL
COTTON-TEXTILE INSTITUTE

banish rust



PQ's Silicate process of corrosion control stops rusty water and saves piping. Iron and galvanized pipes are protected by a thin film of silicate of soda on the interior surface.

The treatment is economical, harmless, easy to handle. More details in Bulletin No. 373, "Water Corrosion Control." Ask for your copy.

Other uses of silicates in the textile industry: coating kiers, kier boiling, bleaching assistant, rayon scouring, back gray washing.

PHILADELPHIA QUARTZ COMPANY
Dept. A, 127 S. Third Street, Philadelphia 6, Pa.
Distributors in over 65 cities.

PQ SILICATES OF SODA

LAZENBY

WINDERS
- **COP**
- **BUTT**
- **BOBBIN**

KEEP your machines at top production with Maintenance and Repair Parts from our stock.

And because Genuine Lazenby Parts are manufactured according to specifications and design drawings, correct fit and satisfactory operation are assured.

F. A. LAZENBY & CO.
31 E. Lee St. Baltimore, Md.

Free FOR THE ASKING

MANUFACTURERS' BULLETINS

READERS interested in literature reviewed on this page may secure copies with time-saving coupon on page 210. Mark what you want on it and send it to Textile World, 330 West 42nd St., New York 18, N. Y. Be sure to give your name and company connections.

1. Color selection of industrial interiors, using a new and simple color selection guide based on the Optonic system, may now be made by persons without detailed technical understanding of color science. This system permits such persons to specify correct color shades that minimize fatigue and promote safety. This system, developed by The Arco Co., is based on five colors—blue, green, tan, coral, and gray. Each of these colors are available in five different shades.

2. Getting the Most from Winding, No. 49 of a series published by Universal Winding Co., covers the proper setting of breakage levers on the Roto-Coner to prevent wear, the positive sizing attachment to the No. 50 winding machine, instructions on cleaning precision slub catcher on the Roto-Coner, and general rules on the cleaning of winding machines.

3. "Raising the Curtain on Neisler," is the title of an article appearing in the February issue of *Esso Oilways*, published by Standard Oil Co. of N. J., Pa., and Colonial Beacon Oil Co. Fabrics produced by Neisler Mills, both in war and peacetime, are traced in this article and special emphasis is given to the 3-ton curtain which they wove of fire-resistant cotton, rayon, and asbestos to cover the stage of the Radio City Music Hall.

4. Recent changes made in the new catalog issued by Davis & Furber are covered in the January issue of *Davis & Furber News*, published by Davis & Furber Machine Co. Changes and also developments that have been made in some of the equipment produced by this company are listed.

5. Stainless steel needles for 51-gage full-fashioned hosiery machines are discussed in the January issue of the *Electromet Review*, published by Electro Metallurgical Co. It is stated that moisture from the operator's fingers at the topping machines frequently corrodes the ordinary steel needle.

6. Resins in the treatment of textiles are discussed in a booklet entitled, "Emulsions-Dispersions Resin Coating Compositions Lacquers," offered by American Resinous Chemicals Corp. Several sections of this booklet are devoted to the applications of such resins to the textile industry. They cover such phases as coating, impregnating and sizing, and various lacquers and coatings.

7. A paint guide offered by the American Marietta Co., enables maintenance engineers to select the best paint for a given application without a detailed technical knowledge of different finishes. This pocket-size guide, working on the slide rule principle, makes available information on properties of the entire Valdura line of heavy-duty maintenance paints.

8. Infrared radiant energy units, designed for use by maintenance men to raise small areas to a relatively high temperature in only a few seconds of time, are discussed in a leaflet being offered by Fostoria Pressed Steel Corp.

9. Record keeping by means of the VISI-record system at the New York office of Goodall Decorative Fabrics is described in a leaflet being offered by The Visible Index Corp. This record system is used by three main departments.

10. Time-schedule controllers are covered in bulletin 98165, issued by Taylor Instrument Cos. This bulletin covers time-schedule controllers such as are used to control size cooking; piece, package, and top dyeing.

11. Industrial research in the field of drying, ventilating, and air-conditioning systems for entire plants and for specific processes is discussed by J. O. Ross Engineering Corp. in a booklet entitled, "The Ross Laboratory." This laboratory contains full-size equipment with which industrial experiments may be worked out for any industry.

12. A wire covering machine is described in a folder being offered by Fidelity Machine Co. This folder describes the Fidelity Sinfra triple-head covering machine which knits cotton covering on wire up to No. 6 gage, at 1,500 ft. per hr.

(*Continued on page 210*)

Style 20

LANE

The IDEAL BASKET for

LOOPERS

SEAMERS

RIBBERS

GENERAL

W. T. **LANE** & BROS., Inc.

Manufacturers : POUGHKEEPSIE, N. Y.

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In a Name!
If ever a name stood for "dependability," it is DARY. For more than 45 years Dary has built "dependability" into ring travelers . . . has rigidly maintained the famous "Dary Process" under which each Dary Traveler is produced.
Today, superior Dary travelers mean spinning dependability to mill men the country over.
Ask the Dary representative nearest you to call. Let him help you solve your spinning problem.
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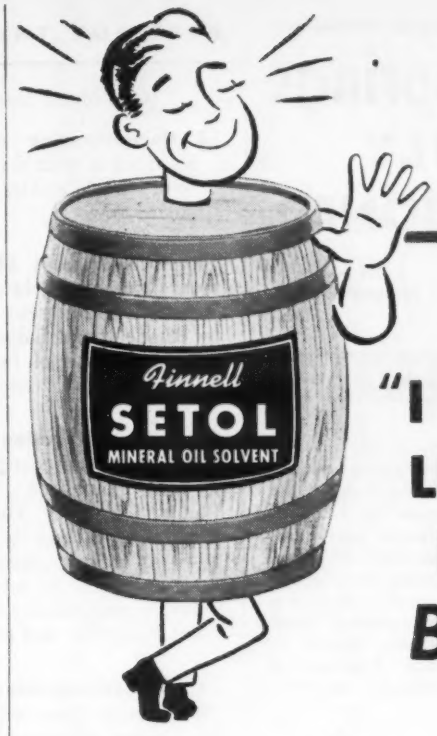
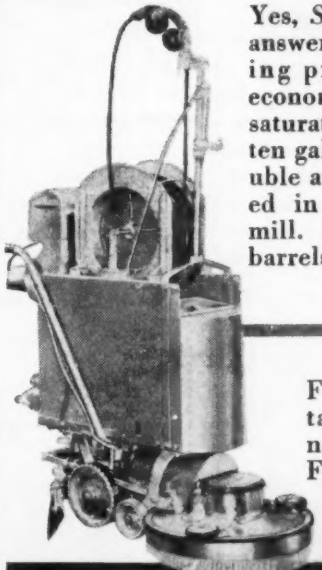
JOHN H. O'NEILL, BOX 720, ATLANTA, GA.
H. REID LOCKMAN, BOX 515, SPARTANBURG, S. C.



"I DON'T LIKE TO BRAG, BUT..."

"When it comes to cleansers for use in scrubbing machines on mill floors, *Setol* has what it takes, —*speed!*" The chemical action of most floor-cleaning powders is too slow for their satisfactory use in scrubbing machines. *Setol,* developed expressly for that purpose, is amazingly fast . . . its chemical action is instantaneous!

Setol is a mineral oil solvent that penetrates and removes even the most stubborn coatings of grimy oil and grease. Yet it is thoroughly safe—on your floors as well as in your scrubbing machine. An all-purpose cleanser, *Setol* is used with equal effectiveness for cleaning painted walls, woodwork, ceilings. Contains no harmful properties that *clean away* the finish and discourage frequent cleaning.



Yes, *Setol* is the labor-saving answer to greasy, grimy cleaning problems. And it's so economical to use, — reaches saturation with one pound in ten gallons of water. Both soluble and sudsless. Compounded in *Finnell's* own powder mill. Put up in barrels, half-barrels, and quarter-barrels.

For literature or consultation, phone or write nearest *Finnell* branch or Finnell System, Inc., 1903 East St., Elkhart, Ind.

FINNELL SYSTEM, INC.

Pioneers and Specialists in

FLOOR MAINTENANCE EQUIPMENT AND SUPPLIES

BRANCHES IN ALL PRINCIPAL CITIES

Franklin Springs
EXPERTLY RECONDITIONED

Left: before re-conditioning

Right: After re-conditioning

We offer the Textile Industry a new method for the satisfactory re-conditioning of unusable Franklin Springs at a fraction of the cost of new springs. To prove the value of our new process, mail us a few of your damaged springs—we will recondition them FREE. . . . We also manufacture new springs in brass, nickel, stainless steel, etc. We recommend our new chrome-plated brass spring for light and troublesome shades, to help eliminate bleeding and discoloration near the spring package. Samples furnished on request.

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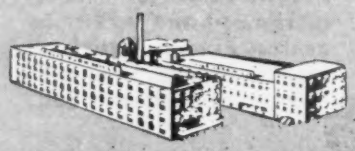

Falls Yarn Mills

WOONSOCKET RHODE ISLAND

FREE FOR THE ASKING

(*Continued from page* 208)

13. Humidification at Ora Mill Co. is described in great detail in the November issue of *Parks' Parables*, published by Parks-Cramer Co.

14. Postwar uses of luminescent pigments are covered in a booklet describing Violite, a luminescent pigment, just issued by Rhode Island Laboratories, Inc. Extensive applications of luminescent pigments in textiles are discussed.

15. X-ray diffraction technique and applications are described in a 12-page booklet just announced by North American Philips Co., Inc. Diagrams, typical diffraction films, and several tabulations are given in order to show how X-ray diffraction equipment is used for identification, research, and production of various textile fibers, pigments, and other items.

16. Fire extinguishing equipment of the dry chemical type, suitable for combatting oil, gas and inflammable liquids, and similar types of fires that are difficult to control with water, are illustrated and discussed in a booklet offered by Dugas Engineering Corp.

17. Gas welding and cutting apparatus are described in the 1945 apparatus catalog, Form 23, just issued by Victor Equipment Co. Welding and cutting equipment, suitable for practically all types of jobs, are illustrated and described. A complete line of replacement parts is included.

18. Precision lathes are illustrated and described in catalog 100-D, obtainable from South Bend Lathe Works. Toolroom lathes, in five sizes ranging from a 9- to a 16-in. swing, are covered.

19. Production management and how it affects productivity, costs, and employment is discussed in a 38-page booklet being offered by Albert Ramond & Associates Inc. Such items as production standards, method improvement, production control, job evaluation, incentive wage plans, and incentives for supervisors and executives are discussed.

20. Punch-Lok clamps and fittings are described in a new catalog just issued by The B. F. Goodrich Co. This type of clamp is so designed that it may be applied for electrical uses such as joining wires together, and for use as a ground clamp. These clamps may also be used for a number of purposes such as repairing lift-truck handles, fixing ladders, and for numerous other purposes which are illustrated and described in this catalog.

21. A catalog of technical books has been published by The Chemical Publishing Co. Listed are the latest books on chemistry, technology, and textile engineering, offered for sale by the company.

22. "Plasticizers," is the title of a new booklet offered by Carbide & Carbon Chemicals Corp. This booklet contains essential information on important plasticizers that are commercially available, including the Flexol plasticizers. Names, formulas, physical properties, and specifications, as well as charts showing the compatibilities of these plasticizers with commercial resins and data on their performance, are included.

PASTE IT ON A POSTCARD

This mailing coupon is a convenient size to paste on a penny postcard. **Circle the numbers of the catalogs you want** which correspond to the numbers on the descriptive paragraphs. Fill out the coupon **legibly** and **completely.** Paste it on a postcard, or put it in an envelope if you prefer, and mail it to Textile World, 330 W. 42nd St., New York 18, N. Y.

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330 West 42nd St., New York 18, N. Y.

I have circled below the catalogs I want, as listed in your March, 1945, "Free for the Asking."

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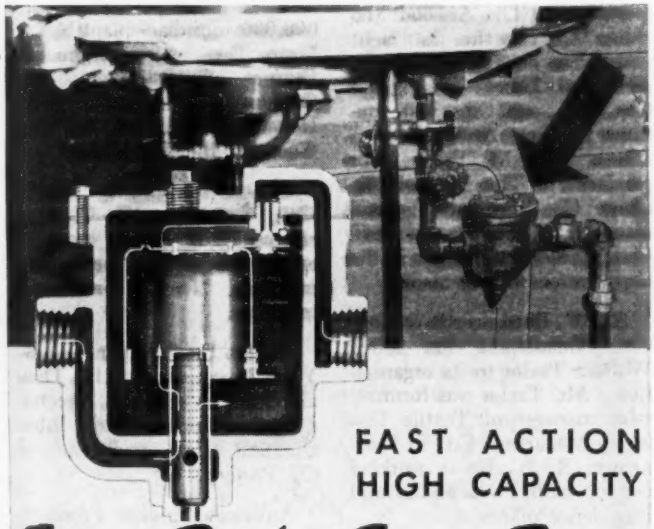

FAST ACTION
HIGH CAPACITY

Sarco Bucket Steam Traps

This trap removes condensate from steam supply lines to pumps, engines, turbines and separators and is preferred by laundries, textile, and plastic industries. It can be adapted to the highest commercial steam pressures and temperatures and can be inspected without disturbing pipe connections. Integral strainer protects the mechanism. Sizes ½ to 2", pressures up to 900 lbs. Ask for Catalog No. 350.

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SARCO CANADA, LTD., 85 Richmond St. W., TORONTO, ONT.

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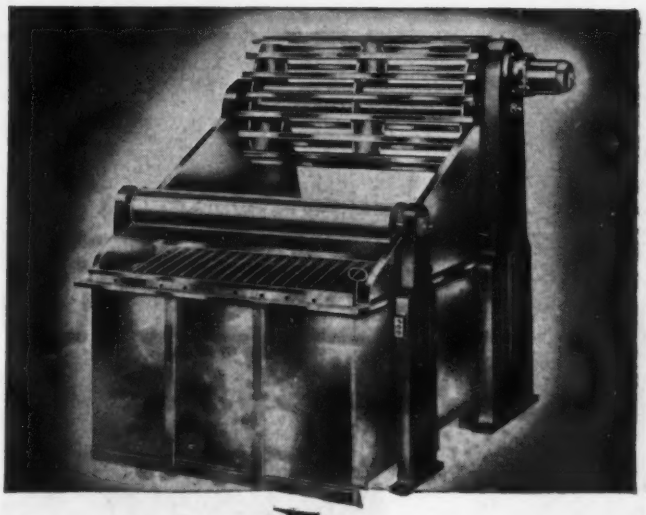

Close-up of round corner in a Blickman dyebox. This feature speeds cleaning, helps you get more runs per box.

MORE DYE RUNS PER BOX

Every aspect of production and profit in textile dyeing depends on how many runs you can get per box per day. More runs per box means better use of manpower — faster service to customers — ability to handle more business at lower cost regularly and during peak seasons.

Blickman stainless steel dye boxes give you more runs per box because they are built with round corners for *faster*, more thorough cleaning — for *quicker* change over from one color to another—for an end to discoloration and false shades.

When you plan for your postwar plant, consult with our textile dyeing engineers.

ARMY NAVY

ALL ORDERS SUBJECT TO GOVERNMENT PRIORITY REGULATIONS

Send for folder "3 for 5" showing BLICKMAN dyeing equipment for new "highs" in post-war production.

S. BLICKMAN, INC.
403 GREGORY AVE. · WEEHAWKEN, N. J.
Manufacturers of stainless steel textile equipment, dye boxes, linings, cylinders, dry cans, rolls, hoods, tanks.

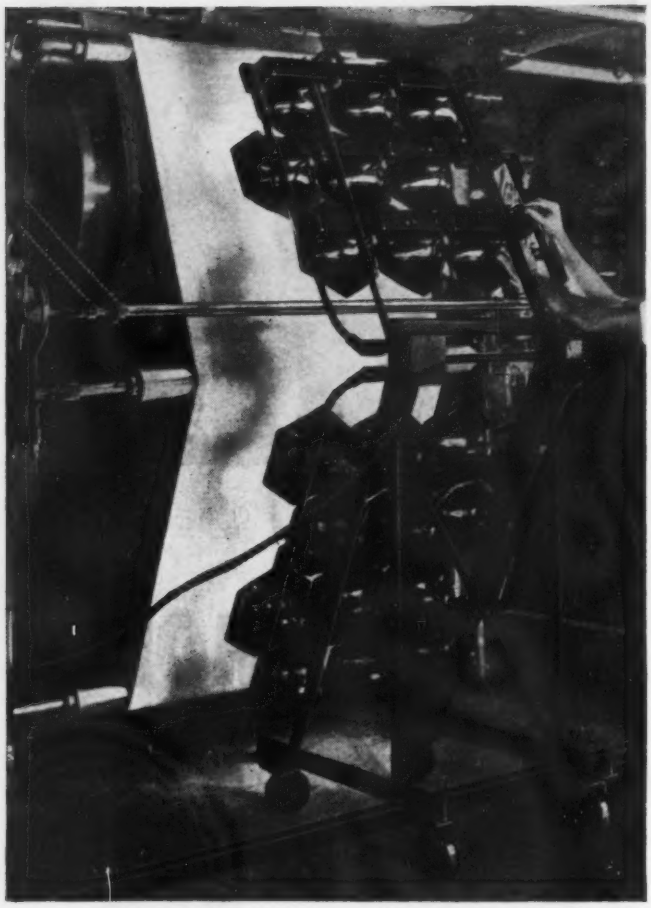

Photo courtesy of Avondale Mills

LOOK!

HERE'S INFRA-RED ON WHEELS!

This photo, made in the Pell City Plant of Avondale Mills, shows a portable installation of Infra-Red Heat Lamps. Heat intensity can be varied by adjusting distance of bank of lamps from fabric. Installation can be used on various machines in different parts of plant.

Wabash-Birdseye Infra-Red Heat Lamps are standard for most infra-red tunnels, ovens, and other production line installations. In adapting your equipment to achieve the really dramatic results possible with Infra-Red, remember that Infra-Red heating is a science; and, for maximum efficiency, **Wabash-Birdseye Lamps should be used with scientifically engineered equipment.** We will gladly furnish names of manufacturers of such equipment.

Wabash Appliance Corporation

345 Carroll St., Brooklyn 31, N. Y.

WABASH-BIRDSEYE

First in INFRA-RED

NEWS ABOUT *Suppliers*

Farrel-Birmingham Co., Inc., Ansonia, Conn. has purchased **The Atwood Machine Co.,** Stonington, Conn. The transfer will take place April 2, 1945. Franklin Farrel, Jr., chairman of the board, Farrel-Birmingham Co., Inc., has issued the following statement regarding this acquisition: "Farrel-Birmingham Co., Inc., will continue to build Atwood machinery and to maintain at Stonington the engineering, production, and sales services of Atwood's 93-year-old organization. Farrel-Birmingham Co., Inc., was likewise established in Connecticut, over a century ago, and operates plants in Ansonia, Derby, and Buffalo, N. Y., with a total of 3,000 employees producing a wide variety of industrial machinery and equipment. The company's engineering and manufacturing facilities will be available to assist in the future development of Atwood products." Franklin R. Hoadley, president of The Atwood Machine Co. for the last eight years, has been elected president of Farrel-Birmingham Co., Inc., and thus will continue to direct Atwood's operations. W. M. Fraser, vice president of The Atwood Machine Co., becomes general manager of The Atwood Division. No other changes in the organization will be made.

FRANKLIN R. HOADLEY, president of Atwood Machine Co., Stonington, Conn., for the last eight years, who has become president of Farrel-Birmingham Co., Inc., Ansonia, Conn., following the purchase of the Atwood business by Farrel-Birmingham.

H. W. Butterworth & Sons Co., Philadelphia, has added Wallace Taylor to its organization. Mr. Taylor was formerly sales manager of Textile Finishing Machinery Co., in Providence, R. I. He is working out of both Philadelphia and Providence offices.

Sterling Ring Traveler Co. has appointed D. J. Quillen, of Spartanburg, S. C., for a number of years southern representative, to be the company's southern manager.

E. I. du Pont de Nemours & Co., Wilmington, Del., Electrochemicals Department, has formed a technical division, with Donald O. Notman as director. Du Pont has awarded contract to Rust Engineering Co., Pittsburgh, Pa., for a 150-ft. chimney at the first unit of the proposed $50,000,000 subsidiary plant at La-Porte, Tex., which will manufacture phenothiazine. The first unit will be known as the Houston Works of Du Pont Grasselli Chemicals Dept.

Cocker Machine & Foundry Co., Gastonia, N. C., has elected D. L. Friday, secretary of the company, to be general manager. He will continue as secretary.

Oakite Products, Inc., New York, have appointed Dr. Donald Price as technical director. He was formerly with Interchemical Corp. and National Oil Products Co.

American Aniline Products, Inc., New York, has appointed Earl K. Bush as manager of the Providence, R. I., branch at 171 Pine St.

Graver Tank & Mfg. Co., East Chicago, Ind., has appointed Chas. W. Springer as manager of eastern sales with offices in New York.

General Electric Co., Schenectady, N. Y.—Philip D. Reed, who until recently was chief of the American Mission for Economic Affairs in London with rank of minister, was re-elected a director and chair-

The Fleet Line

OF FINISHING EQUIPMENT

Fulling Mills • Washers — Batch and Continuous • Derby Dry Cleaners • Piece Dye Kettles • Stock Dye Kettles • Carbonizing Ranges • Dye Becks • Rope Soapers • Soaping Machines • Pusher Mills • Soap Distributing Systems • Top Dyeing Machines • Progressive Jigs • Yarn Steamers

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INCORPORATED

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CORN STARCHES, DEXTRINES, GUMS, CORN SUGARS & SYRUPS

NEW YORK, N. Y. - - - - CEDAR RAPIDS, IOWA

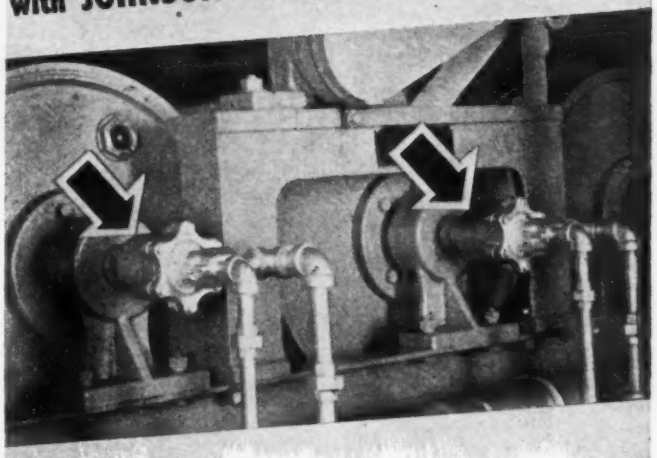
SOUTHERN OFFICES: ATLANTA, GA. - - - - SPARTANBURG, S. C.

John:
Penick and Ford's Starches and Gums for sizing Corduroy warps insure dependable weaving and maximum cutting efficiency.
Let's try the type they recommend. Jim

save

manhours
production time
maintenance cost

with JOHNSON ROTARY PRESSURE JOINTS

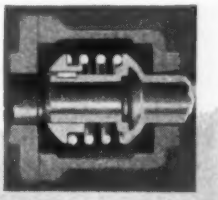


● Operating men everywhere have learned that the Johnson Joint is far more than just a better stuffing box or steam fit. It's an effective way to help solve many of your operating problems, this year and every year.

To begin with, the Johnson Joint steps up production. Its simple trouble-free design saves valuable time that is wasted when machines are shut down to repack or repair stuffing boxes. In addition, it provides a simple, neater way to install more efficient methods of syphon roll drainage.

While production goes up, maintenance costs come down. The Johnson Joint has no packing to wear out, needs no oiling or adjusting, and absorbs trouble-causing misalignment—both lateral and angular.

Reducing maintenance of course stretches your manpower—makes hard-to-get help available for more productive work. This is particularly important today. From every standpoint, you never had greater need for the Johnson Joint than you have *right now.*

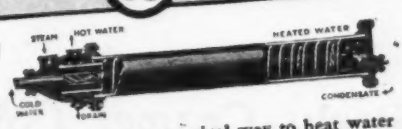


Write for full information

The Johnson Corporation

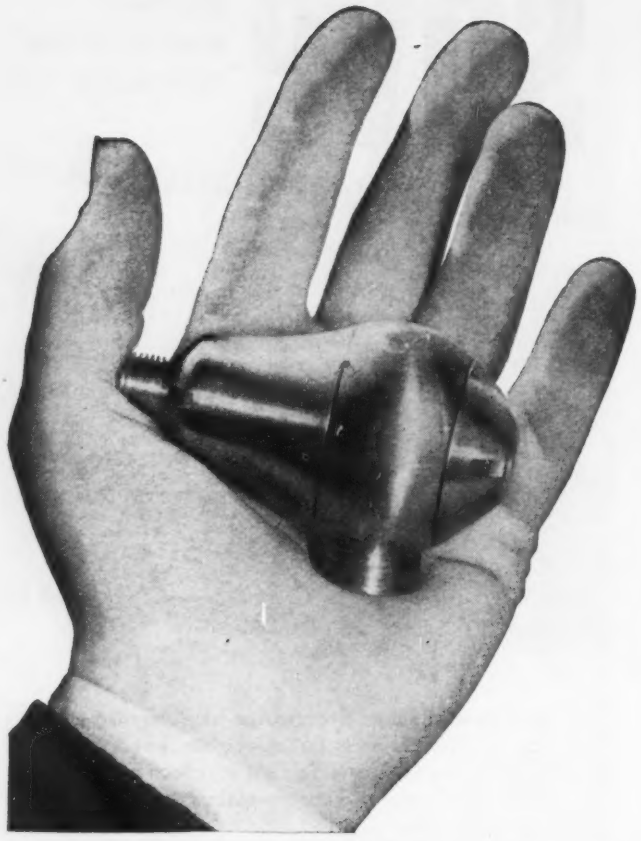
814 WOOD STREET — THREE RIVERS, MICH.

NEED HOT WATER?



The simplest, quickest, most economical way to heat water with steam is with the Johnson Instant Heater. Needs no reducers; hooks right up to high pressure steam lines. Available now in lower cost, all steel construction, or for use in process work with heating chamber of copper tubes.

Complete range of sizes, capacities; write for bulletin



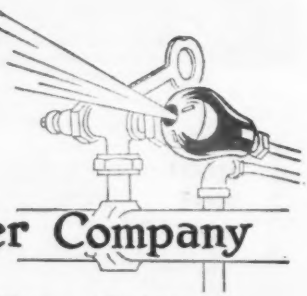
A Reliable Atomizer

Leaky atomizers are not reliable. They fritter away your expensive compressed air—on the sly. They leak in places not easily found, places you are not looking for.

Parks Turbomatic Atomizer

"leaks" *in one place;* where vapor is made and pushed out. Air pumped in comes out where it is supposed to. The TURBOMATIC (the atomizer with the diaphragm) is efficient . . . Stays so.

Interchangeable with earlier Turbo models.



Parks-Cramer Company

Fitchburg, Mass. Boston, Mass. Charlotte, N. C.

man of the board of the General Electric Co., a position from which he resigned in January of 1943. In addition he was elected chairman of the board of the International General Electric, a position formerly held by Gerard Swope. In 1941 Mr. Reed became senior consultant to the Priorities Division of the Office of Production Management, which later became the War Production Board. He became chief of the Bureau of Industries in WPB, and subsequently was appointed to serve on the Mission of Economic Affairs. Ralph J. Cordiner has been elected vice president and assistant to the president of General Electric. J. W. Holt, Jr., has been placed in charge of commercial activities involving G-E apparatus for the textile industry, it has been announced by W. W. Cronkhite, manager of General Electric's Industrial Manufacturers Division. He joined the company in 1929. In 1936 he became a member of the Motor Sales Division, Schenectady, where he specialized in motors for textile and rayon machinery until his recent appointment.

Standard Mill Supply Co., Pawtucket, R. I., has added Hamilton P. Dunbar to its staff of traveling representatives. He was formerly with Abbot Machine Co., Wilton, N. H.

Jordan Mfg. Co., Monticello, Ga., has been purchased by Monticello Bobbin Co., with the intention of resuming full-time operation as quickly as labor and raw materials are available.

The Mathieson Alkali Works, New York, has named Howard A. Sommers as chief engineer of the corporation.

Columbia Chemical Division, Pittsburgh Plate Glass Co., has appointed Walter T. Johnson as district sales manager in Chicago. He has been with Columbia since 1930. H. E. Zoll has been appointed manager of Pittsburgh Plate Glass Co's warehouse in Philadelphia.

Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa., has elected Gwilym A. Price, of Pittsburgh, and John R. Read, of Hamilton, Ontario, Canada, to its board of directors. Leonard C. Blevins has been made sales manager

R. J. WHEELER, who has been appointed chief metallurgist of the Carter Traveler Division, of A. B. Carter, Inc., Gastonia, N. C. For the last 22 years, Mr. Wheeler has been chief metallurgist at Riverside Metal Co., and earlier he worked on steel tests for the American Locomotive Co. With Carter, he will direct the development of products and laboratory control from raw materials to finish.

of the Meter Division of Westinghouse, and H. L. Buechner was appointed to succeed Mr. Blevins as watt-hour meter sales manager. George S. Ryan has been named assistant to vice president of Westinghouse, and C. B. Dick succeeds him as manager of the Feeder Division. E. R. Perry has been named as manager of the Micarta Division. A New England District of the Westinghouse Lamp Division's field organization has been established under George H. MacGilvray as district manager. Warehouse is at 145 Ipswich St., Boston.

WPB Statement on Replacement of Used Textile Machinery

IN THE REPLACEMENT of used machinery with new in a textile mill, War Production Board permission is not required under Order L-215 if the fabric or yarn production of such mill will be at least as great after installation of the new machinery, WPB has reported. This clarification was made by issuance of Interpretation 3 to General Limitation Order L-215 (Textile, Clothing, and Leather Machinery). Under paragraph (e) of Order L-215, no mill, plant or factory that at any time in the period from Jan. 1, 1944, to Aug. 31, 1944, inclusive, produced any textile fabric or yarn shall be dismantled without specific permission in writing from WPB.

Fairbanks-Morse Scales
Help Speed Production, Guard Accuracy

In textile production Fairbanks-Morse Scales help check and record quantity as work moves from department to department. And, where volume plays a part in payrolls, accurate printed records from Fairbanks-Morse Scales forestall disputes, assure accuracy. In weigh counting, in checking incoming and outgoing shipments, and in many other mill operations you'll find Fairbanks-Morse Scales serving with outstanding satisfaction. They're fast, they're adaptable, and as production tools help eliminate chances for human error.

Why not get details on how Fairbanks-Morse Scales can help you solve production problems. Write Fairbanks, Morse & Co., Fairbanks-Morse Building, Chicago 5, Illinois.

Illustrated left is a Fairbanks-Morse Platform Warehouse Scale with direct-reading cabinet dial. Also available with Printomatic attachment.

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EMPIRE *textile mill crayons*

THE PERFECT MARKER FOR ALL TEXTILE MILLS

Especially made for marking the roving in wool, cotton, silk, rayon, and all textile mills.

Supplied in 18 clear, distinguishable colors.

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French-spun Worsted and Merino Yarns. Specialty Yarns—Rabbits Hair, Rayon, Acetate and Other Blend Yarns.

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PHILADELPHIA, 1600 Arch St. CHARLOTTE, Commercial Bank Bldg.

NEWS ABOUT SUPPLIERS

Stein, Hall & Co., Inc., New York, and its wholly-owned subsidiary, Stein, Hall Mfg. Co., Chicago, are now operating as a single company under the name of the parent firm.

Philadelphia Quartz Co., Philadelphia, has named Edwin A. Russell, director and sales manager, to be vice president in charge of sales.

Scott Testers, Inc., is the new firm name of Henry L. Scott Co., Providence, R. I., manufacturers of testing machines. It is a change in name only, the management remaining unchanged.

Machine & Management Corp., New York, N. Y., has been formed by the following who were previously with Sherman & Associates: Otto Engelhard, formerly in charge of the textile division; M. Keesing, formerly in charge of general and automatic machine design; and Melville Sears, formerly chief engineer. The new company specializes in general, automatic, and textile machines Headquarters are at 82 Beaver Street.

Monsanto Chemical Co., St. Louis, is about to begin volume production of melamine. Melamine, a member of the tri-amine family, has textile applications in shrink and crush-resistant finishes. Construction of a new melamine plant is underway at Monsanto's Merrimac Division, Everett, Mass., where the chemical is now being produced in pilot plant quantities.

Apex Chemical Co., Inc., Elizabeth, N. J., will supervise, direct, and promulgate the entire research of Petroleum Solvents Corp. for the year of 1945. To undertake this work Dr. Harry Kaplan, previously with Winthrop Chemical Co., has been engaged. Dr. Kaplan will work under the supervision of Sidney M. Weinstein, director of research of Apex.

The B. F. Goodrich Co., Akron, Ohio, will construct a new research laboratory in Brecksville, Ohio, 20 miles from Akron. Goodrich has added to its line of industrial hose a complete series of Lonn blow guns, whose fingertip-control is made possible by the use of rubber. They are made by Lonn Mfg. Co., Indianapolis, Ind.

DR. F. W. BRETH, who has been elected vice president of L. Sonneborn Sons, Inc., New York, in charge of manufacturing. He joined the firm in 1915 as chief chemist and was later named technical director, a post he has held for many years.

Link Belt Co. has transferred R. B. Holmes, general manager of Atlanta operation, to the Philadelphia area as general manager. He will be succeeded in Atlanta by R. S. Galloway from Pittsburgh, Pa. Allen Craig has recently been appointed divisional manager of the southeastern territory and will be associated with Mr. Galloway in Atlanta. The company lately awarded contract to Herman Construction Co., for remodeling its office building.

American Machine & Metals, Inc., East Moline, Ill. has lately established three new district offices. Oliver H. Castle, member of the Troy Laundry Machinery Division of the com-

BEN S. WRIGHT, since November, 1940, manager of Fiberglas Fabrics Division in the Toledo general offices, who has been transferred to Cleveland as manager of Owens-Corning Fiberglas Corp. branch office, 825 Hanna Building. He succeeds W. H. Atkinson, who becomes manager of the Chicago branch office, taking the place of F. L. Myers who returns to the company's general office on special assignments in thermal insulation.

WE'VE LEARNED A LOT IN OUR 50 YEARS

50 years of specialized experience in producing tanks and tubs for the textile industry *has taught us some things that will be valuable to you!*

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Assets, Capital Stock, Family Holdings of
Industrial Plants, Mfg. Divisions, Units

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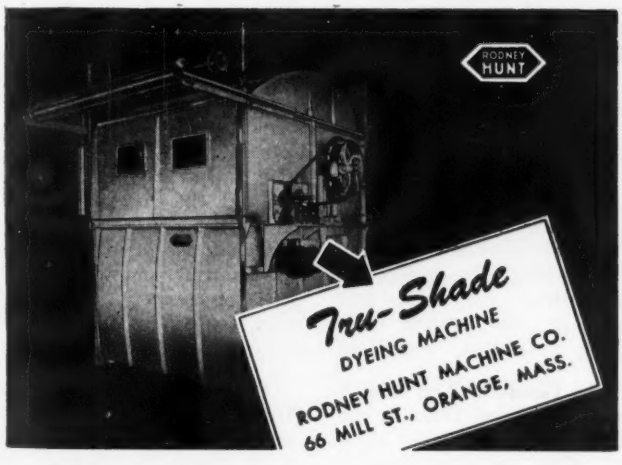

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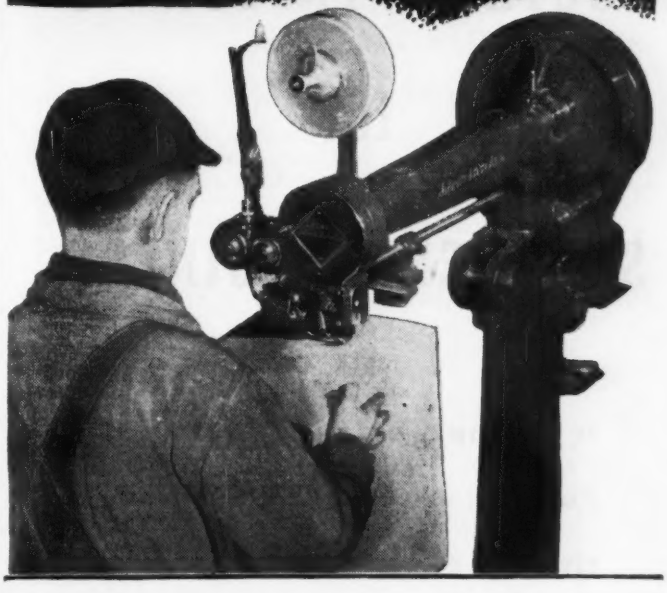

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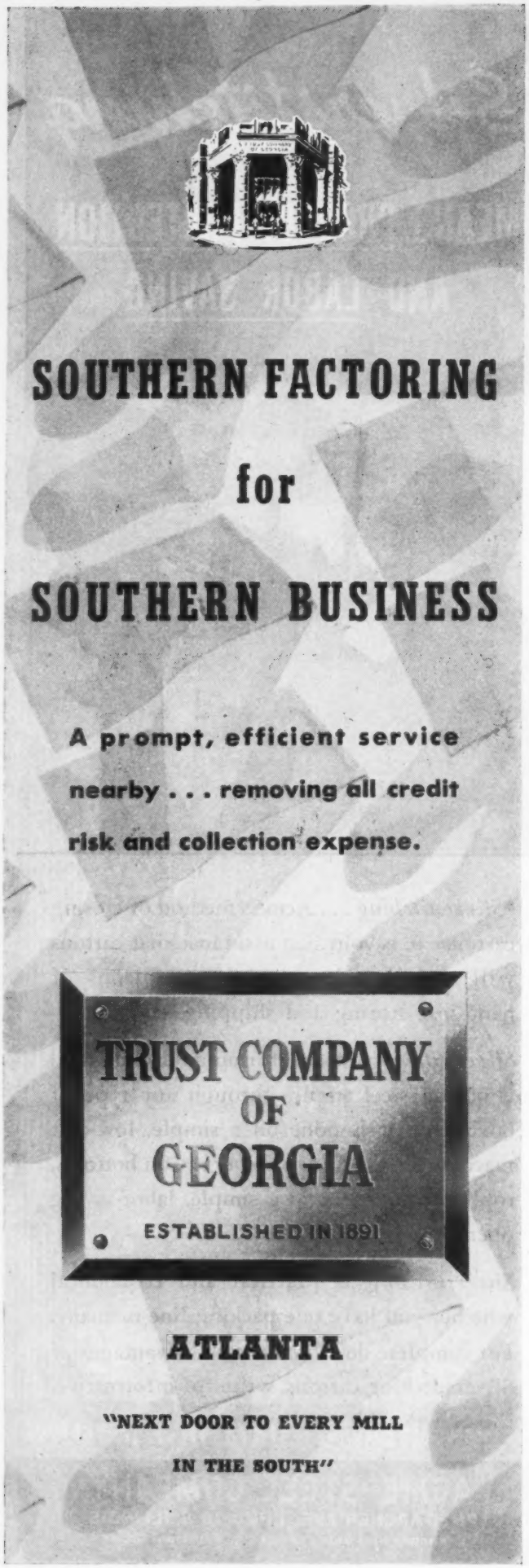
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SOUTHERN BUSINESS
A prompt, efficient service nearby . . . removing all credit risk and collection expense.
TRUST COMPANY OF GEORGIA
ESTABLISHED IN 1891
ATLANTA
"NEXT DOOR TO EVERY MILL IN THE SOUTH"

pany since 1929, has been appointed manager of the Dallas district with headquarters in the Mercantile Bank Building in that city. G. W. Johnson, Troy salesman and former commercial laundry manager, has been appointed to head the Minneapolis district sales territory with offices in the Foshay Tower Building. Harold N. Ewertz, previously sales manager for an eastern manufacturer of stainless steel and other high alloy welding electrodes, has been appointed manager of the Philadelphia district, with headquarters in the Philadelphia Savings Fund Society Building.

Taylor Instrument Cos., Rochester, N. Y., have promoted Frank Ward, formerly the companies' divisional sales manager in charge of products used in the textile industry, to the position of assistant industrial sales manager.

Hercules Powder Co's Cellulose Products Department Chicago office has been established as a regular branch office with Fred K. Shankweiler, formerly of the department's New York office, as manager.

Foster D. Snell, Inc., Brooklyn, N. Y., has appointed Dr. D. Gardner Foulke, recently chief chemist for the Garfield Division of Houdaille-Hershey Corp., as director of the analytical department.

Illuminating Engineering Society, New York, has released an entirely non-commercial motion picture film designed to demonstrate the basic principles of good lighting under actual industrial conditions.

The Goodyear Tire & Rubber Co., Akron, Ohio, is constructing a $1,500,000 chemical plant to manufacture a wide variety of new rubber-like plastics known as vinyl chloride co-polymers in Natrium, W. Va. The new plant's capacity is 3,000,000 lb. per year.

Armstrong Cork Co., Lancaster, Pa., has elected to its directorate W. Gibson Carey, Jr., Port Chester, N. Y., to fill the vacancy caused by the death of Dwight L. Armstrong. Mr. Carey is president of the Yale & Towne Mfg. Co.

Hills-McCanna Co., Chicago, has made available an educational program revealing the wonders of magnesium. The program consists of a sound film depicting the production and fabrication of magnesium, a display of varied types of magnesium products, and talks by company officials.

J. C. (CAUTEY) ALEXANDER, who has been appointed by Corn Products Refining Co., as manager of the Mill Starch Textile Sales Division of the company at Atlanta, Ga. Mr. Alexander replaces C. G. Stover who, after many years, is leaving the company to become president of the Monticello Bobbin Co., Monticello, Ga. Mr. Alexander has represented Corn Products at Greenville and Spartanburg.

Nuodex Products Co., Inc., Elizabeth, N. J., has acquired a plant at 19th St. and So. Washtenaw Ave., Chicago, which will be operated as a branch in addition to the branch plants in Toronto, Canada, and Sydney, Australia. The parent plant at Elizabeth received the Army-Navy "E" Award last month. Leo Roon, president, accepted the flag for the company, and H. M. Johnson, vice president in charge of sales, acted as master of ceremonies.

The Flintcote Co., New York, has acquired the Whippany, N. J., rubber reclaiming plant previously operated by the Manhattan Rubber Mfg., Division of Raybestos-Manhattan, Inc. Flintcote has also purchased The Tile-Tex Co., pending approval of the SEC. An asbestos mining property in Canada near Thetford Mines, Province of Quebec, has also been acquired.

Emery Floor Co., Inc., New York, has been organized to lay industrial floor toppings where Cortland emery aggregate is used. This company is associated with Walter Maguire Co., Inc., producers of Cortland emery aggregate, and will operate in cooperation with established flooring firms.

Study the loss on "Seconds"

You'll find *cheap* lubricants *expensive*

A majority of the largest mills are far sighted enough to realize that a lubricant is worth *what it saves*—so they use NON-FLUID OIL. Because NON-FLUID OIL does not drip or leak, it effects a reduction in oil spot "seconds" that is many times greater than its own cost.

For the same reason NON-FLUID OIL outlasts liquid oil 3 to 5 times, saving money on oil and maintenance costs.

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A doffer's thoughts on RINGS

Overseers are working more closely than ever with operatives these days to assure equipment being in A-1 condition. Quite often they find opportunities to gain extra production even though machinery is heavily loaded. A change to new DIAMOND FINISH rings often boosts output surprisingly. Encourage your overseers to replace worn rings, and to utilize our Eadie lubricated styles where applicable.

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Cotton yarns, single and ply

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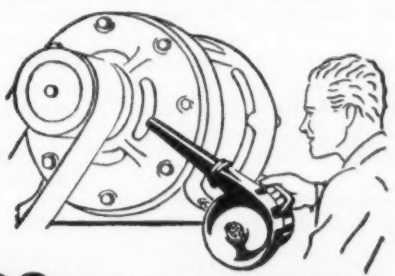
Seamless grain bags.

Blow Out Dust — Keep Motors and Machinery Clean with



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PREVENT motor burnouts, overheating and shutdowns. Keep motors and machinery clean. Blow out dust, dirt, lint, chips, etc. with the powerful, portable TORNADO Electric Blower. Quickly pays for itself in cutting repair and replacement costs. **Write for details and FREE Trial Offer**

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A New Chemical Treatment

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SPEED UP DRYING OF THICK FELTED GOODS

A single 119 inch Red-Ray Burner applied to cans for drying inch thick felted material. Drying speed increased 60 per cent.

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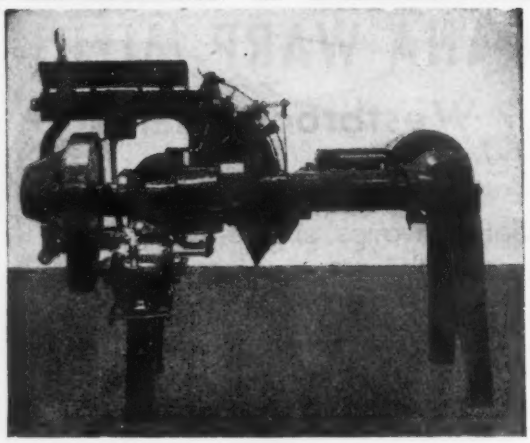

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HIGH CLEANING CAPACITY
Protects barrel and finish. Usually pays for itself in one year—always within 18 months.

Complete information promptly furnished upon request

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Geo. Thomas & Co.....Manchester, England—European Agt.

NEWS ABOUT *Mills*

Cotton Mill News

American Yarns, Mount Holly, N. C., capitalized at $300,000, has been formed by R. S. Dickson and others, of Charlotte, N. C., to carry on the business of cotton doublers, spinners, etc.

John A. Bidwell division of Massasoit Co., Beverly, N. J., suffered loss of thousands of dollars in stock when its warehouse was burned early last month.

Bi-Products Textile Co., Los Angeles, Calif., is erecting an addition to the warehouse building at an estimated cost of $4,000.

Bloom Mills, Gastonia, N. C., has been chartered, with authorized capital stock of $500,000.

Carolinian Mills, Inc., with principal office at Gastonia, N. C., has purchased Plant No. 3 of Jackson Mills at High Shoals, N. C. E. O. Reading is president of the company; J. O. Corn, vice-president and general manager; and W. M. Gillespie, secretary.

Connecticut Lace Works, Inc., Norwalk, Conn., has awarded a $5,500 electric contract to Arc Electrical Construction Co., Inc., 739 Second Av., New York. Plant is on Mueller St.

Dixie Cotton Mills, LaGrange, Ga., recently awarded contract to Newman Construction Co., LaGrange, for two-story addition to main mill. Approximately 15,000 sq. ft. of floor space will be added. Construction work is under way. Robert & Co., engineers, Atlanta, Ga., furnished plans and specifications.

Fulton Bag & Cotton Mills, Atlanta, Ga., plans installation of air-conditioning equipment in the spinning department of the No. 1 unit.

General Cotton Supply Corp., Fall River, Mass., has completed alterations to its mill on Hartwell street at a cost of $5,800. A. H. Leeming & Sons, Inc., Fall River, Mass., had general contract which included new floors, office and plant partitions, new stairs and fire escapes. The mill is a 5-story stone building, 70x210 ft.

Goodyear Tire & Rubber Co., Gadsden, Ala., is having plans prepared by Robert & Co., of Atlanta, Ga., for the construction of an addition.

Gray Mill, a unit of Textiles, Inc., Gastonia, N. C., has been purchased by a new company formed by Joseph Bloom, of Gloversville, N. Y., at a price reported as $350,000. The new company will be known as Bloom Mills, Inc., and will continue to manufacture combed yarns. A. G. Myers, Gastonia, president of Textiles, Inc., stated that the proceeds of the sale of this mill would be used largely in revamping and modernizing other plants of the organization so as to have them in readiness for postwar production.

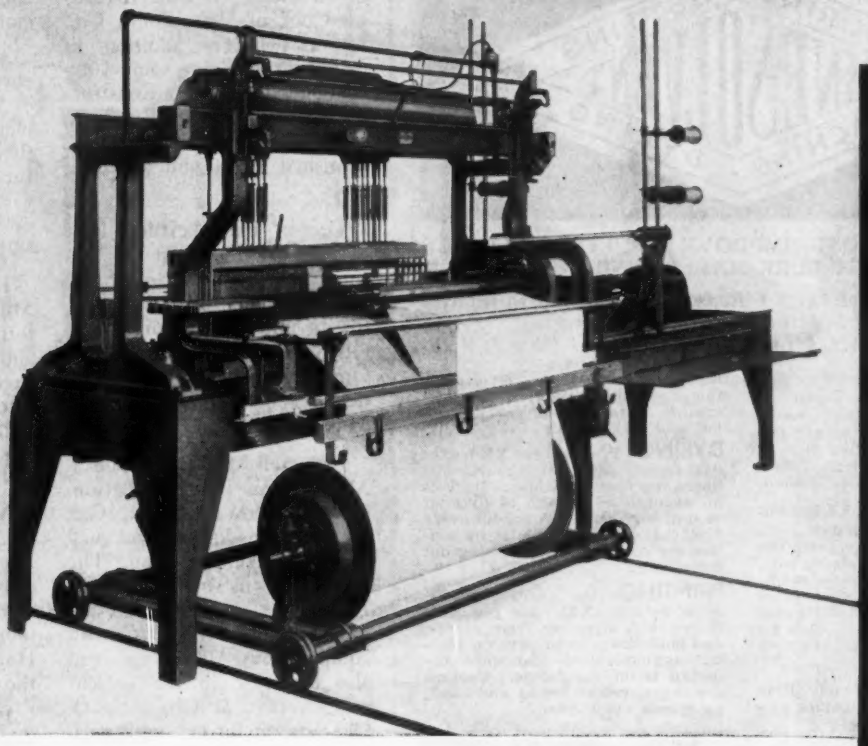
Grenada Industries, Inc., Grenada, Miss., is to be expanded as early as possible to almost triple its present output. The construction of about 40,000 sq. ft. of building space will be added. The new building is scheduled to be ready for installation of machinery by June and to be in full operation by October. The company is now working on government contracts.

Independent Cordage Co. has moved their offices and warehouse to a new location at 397 Washington St., New York City, where they will occupy a 6-story building.

Mansfield Cotton Mills, Lumberton, N. C., has sold majority stock in the company to John W. Hanna, of New York, for more than $400,000, according to an announcement by mill attorneys. Organized in 1922, the mills employ approximately 500 workers. No personnel changes are contemplated.

Opelika Mills, Opelika, Ala.,

NEW BARBER-COLMAN DRAWING-IN MACHINE



NEW FLAT STEEL HEDDLES LEAD THE WAY TO BETTER DRAWING-IN AT LOWER COST

Shown here are two of several types of flat steel heddles developed for the new Barber-Colman Drawing-In Machine. Open ends permit free movement the full length of support bars in the frames and the characteristic key-hole provides for proper alternate selection of successive heddles. We suggest you *start now* to replace your heddle frames progressively with this new type, so as to be in a position to take advantage of drawing-in economies provided by the new Barber-Colman Drawing-In Machine. Thus, by the time you are in position to obtain the machine you will have built up a supply of the necessary heddles which you will find, in the meantime, to be perfectly satisfactory for hand drawing-in. Steel heddle manufacturers are now ready to answer your inquiries concerning this equipment.

AUTOMATIC SPOOLERS • SUPER-SPEED WARPERS • WARP TYING MACHINES • DRAWING-IN MACHINES

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ROCKFORD • ILLINOIS • U. S. A.

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SCOURING WETTING
PINE-SOLVENT
BLEACHING DYEING

CUT TIME AND COST—IMPROVE RESULTS IN ALL WET PROCESSING WITH BURK-SCHIER PINE SOLVENT XX

Burk-Schier Pine Solvent XX Reduces Surface and Interfacial Tensions . . . Wets, Penetrates, Suspends, Disperses . . . Aids Detergents and Dyes. A Little Does a Lot and Does It Well.

COTTON: In the kier, Pine Solvent XX brings the liquor in contact with every fiber, leaves uniform bottoms that dye and finish more evenly. Boiling time is cut. Fibers are softer, fuller, more resistant to age-discoloration.

WOOL: Pine Solvent XX is valuable in raw-wool scouring . . . irreplaceable in fulling. From the raw stock it produces clean, soft, really white wool in prime condition for storage or further processing. In the fulling mill, it cuts time as much as 30% . . . costs no more . . . helps you meet contract delivery dates on time.

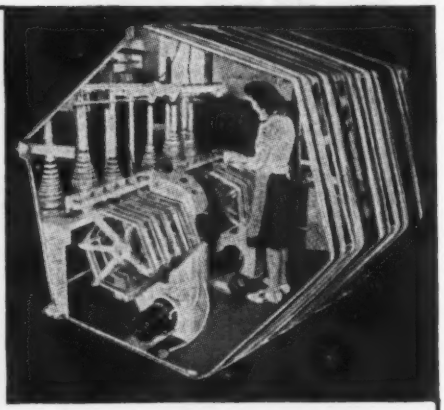
RAYON: In boiling off, Pine Solvent XX rapidly emulsifies gelatinous materials . . . is safe for the most delicate fabrics. Used in dyeing, it makes the fabrics wet out and sink quickly.

DYEING: Pine Solvent XX makes dye liquor penetrate the hardest fibers and heaviest seams. It gives an even, level deposit of dyestuff of uniform depth throughout every fiber. Loose dyestuff and impurities are suspended for washing out completely.

PRINTING: In printing paste, Pine Solvent XX wets pigments thoroughly, disperses them evenly, and holds them in suspension without agglomeration and until the design is on the fabric. Designs are sharp, colors bright and clear, no specks are formed.

BURKART-SCHIER CHEMICAL CO.
CHATTANOOGA, TENNESSEE
MANUFACTURING CHEMISTS FOR THE TEXTILE INDUSTRY

While one machine winds skeins, operator doffs other unit.



20% to 30% more skeins an hour . .
up to 50% less floor area . .
with
FIDELITY

TWIN-UNIT SKEIN REELING SYSTEMS

Twin-unit System keeps your operators "on top of the work" with less fatigue. Collapsible arms on reels. Doffing a simple one-arm operation. Automatic yardage control. 50- to 60-second doffing cycle. Compact construction saves space, steps.

Two types. Double-End to wind 12 skeins, designed for rayon, nylon and the finer counts of yarn. Equipped with adjustable reels for skeins 33" to 60". Variable speed drive, 150-400 R.P.M.

Single-End, 6 skeins, for worsted and coarser counts of yarn. Operating speed, 103 R.P.M. Can be equipped with larger reel for skeins, 45" to 75" circumference. Single-End types may be equipped with variable speed. Write for bulletin.

FIDELITY MACHINE COMPANY
3908-18 FRANKFORD AVENUE, PHILADELPHIA 24, PA.

has awarded contract to Batson-Cook of West Point, Ga., for a two-story addition to main mill involving some 1000 sq. ft. of floor space. Construction is soon to begin. Robert & Co., engineers, Atlanta, Ga., furnished plans and specifications.

Oregon Flax Textiles, Inc., Salem, Ore. Interest in this firm has been acquired by California Cotton Mills Co. for an undisclosed sum. B. A. Olsen, one of the founders of Oregon Flax Textiles is president of California Cotton Mills.

Pepperell Mfg. Co., Opelika, Ala., has low bid from Batson-Cook Co., West Point, Ga., for a mill addition and will award the contract soon. The structure will be two-stories, 176x250 ft., and will cost approximately $325,000, with equipment. Alterations will also be made in the present mill. Robert & Co., Atlanta, Ga., are architects and engineers.

Thread Mill, Toccoa, Ga., has begun the construction of an addition, which will provide the mill with 3,000 sq. ft. of additional space. It will be used as additional production space.

Twin Cities Textile Mills, Inc., St. Paul, Minn., has purchased the Eagle-Pitcher Lead Co. plant in Chicago and is expected to move its manufacturing facilities to Chicago.

Wool Mill News

Ashaway Woolen Mills, Inc., Hopkinton, R. I., have been chartered with capital of 600 shares of stock, no par value, to operate a local mill. John Ferguson, Ocean View Hy., Westerly, R. I., is principal incorporator.

Atlanta Woolen Mills, Atlanta, Ga., recently purchased by new interests (previously reported), will be headed by D. P. Manget, Newnan, Ga.

Esmond - Virginia, Inc., Lynchburg, Va., unit for manufacturing baby blankets, which has been in operation for the last three years, announced plans for closing this branch unit, due to the expiration of its lease. This unit was merged with those of the company's headquarters at Waynesboro, Va.

Greenfield Carpet Co., of Greenfield and Hillsboro, N. H., has bought a mill at Manchester and consolidated operations there.

Kanmak Mills, Inc., Manchester, N. H., manufacturers of cotton, rayon, worsted and blended fabrics, have changed their name to **Amoskeag Mills, Inc.,** to avoid further confusion with another plant operating under the name of Kanmak Mills, Inc., in Kulpmont, Pa.

Kemlin Woolen & Worsted Mill, Seneca, S. C., has been formed to manufacture men's and women's wear materials. Fred J. Came, former superintendent of the LaFrance mill, has leased a building near Seneca and will install 24 woolen and worsted looms.

Massachusetts Mohair Plush Co. of Lowell, Mass., and West Warwick, R. I., has purchased the mill building and adjoining warehouse in Solomon Falls, N. H. Randall B. Houghton will be in charge of the New Hampshire plant.

Pacific Mills, Boston, Mass., will establish a worsted and woolen weaving mill at Carrboro, N. C., in a building purchased from Durham Hosiery Co. J. E. Sirrine & Co., Greenville, S. C., is the engineering firm. Pacific Mills will establish a 54-loom worsted weaving unit as soon as approval is obtained from proper Federal authorities.

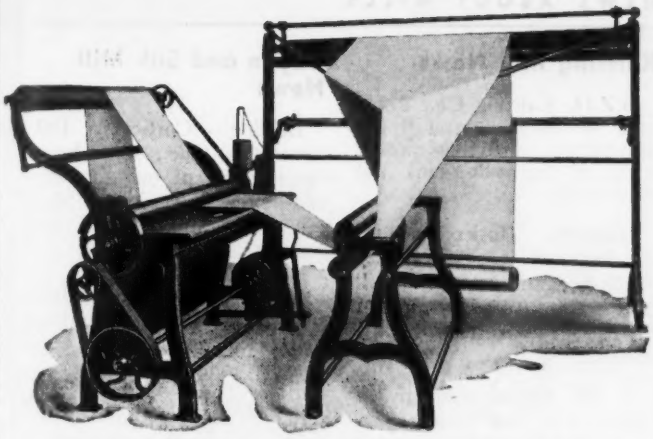
Peerless Woolen Mill, Rossville, Ga., has plans for a new one-story addition, including alterations and improvements in present mill buildings. Robert & Co., Atlanta, Ga., are engineers.

Sangerville Woolen Co., Sangerville, Me., has plans for rebuilding two upper floors of four-story mill, recently damaged by fire at an estimated cost of $60,000.

Joseph Simpson Sons, Ltd., Toronto, Ont., have been acquired by S. Godfrey, Inc., 10 High St., Boston, Mass., dealers in wool and noils, etc.

R. C. Swan Co., Keene, N. H., plans to start making wool yarns for Navy blankets. Machinery is being installed and it is expected that production will start in March, with 25 employees.

United Felt Products, Ltd., 1 Wiltshire Ave., Toronto, Ont., has plans maturing for a new one-story mill, at an estimated cost of $45,000, with equipment. Edward I. Richmond, 455 Spadina Ave., Toronto, is architect.



No. 27—IMPROVED DOUBLING AND TACKING MACHINE

Sewing any length stitch up to 1¼ in., making a firm, strong stitch for any weight or width of goods. This machine is equipped with our latest oscillating needle bar sewing head, which makes it the fastest tacking machine on the market for tacking the selvages of woolen and worsted fabrics. For further information, send for our catalog.

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CHARLES COOPER CO., INC.

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Manufacturers of

Quality LATCH and SPRING-BEARD

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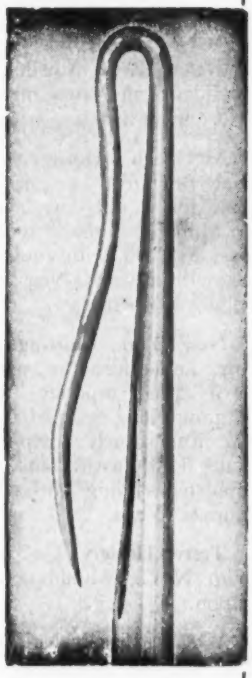

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Manufacturers of **THE FAMOUS COOPER CIRCULAR SPRING-NEEDLE RIB KNITTING MACHINES**

TO WIN QUICKLY AND COMPLETELY!

WE are concentrating all of our efforts — all our facilities — all our abilities — behind the well known gentleman whose likeness appears above. In doing so — we are also serving your best interests — even though we may temporarily be compelled to give you the impression that we are neglecting you. Our sole object is to help win as quickly and completely as possible. Meanwhile, we will help you users of Brinton Knitting Machines, to the best of our ability.

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TOOLING FOR SPEED AND ACCURACY

★ For fourteen years tool making has been our business—and always will be. Our engineering department is ready to discuss your present or future problems—our tool making shop—one of the best equipped in the world—will build any size tool weighing from a few ounces to tons. Write for our brochure "Men and Machines."

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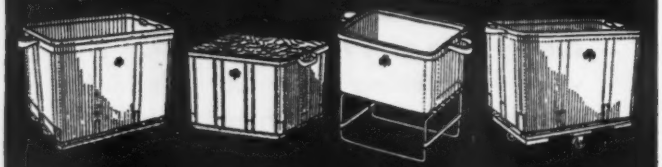

Shamrock Baskets are busier than ever these days. Their rugged construction is a source of satisfaction to users everywhere.

Shamrock

MEESE, INC. Madison, Ind.

Knitting Mill News

B.Z.D. Knitting Co., Rockford, Ill., is making mill improvements, including installation of new water tank and other work.

Dilworth Hosiery Mills, Charlotte, N. C., is a newly established mill for the manufacture of children's anklets. E. E. Suttle is head of the company.

E. W. Hetzel, formerly of Dallas, Tex., has leased quarters at 351 West St., San Antonio, Tex., and will establish the Lone Star Hosiery Mill, which is expected to be in operation by the last of March. Four hosiery machines and auxiliary equipment have been purchased.

Hosecrafters, Inc., Thomasville, N. C., has been granted a certificate of incorporation to deal in hosiery, with an authorized capital stock of $100,000 and a subscribed stock of $1,400. The incorporators are Ford M. Meyers, Dorothy H. Meyers, and W. O. Poole, all of Thomasville.

Larkwood Hosiery Mills, Charlotte, N. C., control has been purchased by R. S. Dickson & Co. and J. C. Bolles, hosiery manufacturer of Burlington, N. C. It is understood that Mr. Bolles will become president, and that E. W. Sachsenmaier and Frank Hoffman, previously president and secretary respectively will continue in an advisory capacity, and that R. H. Moeller, vice-president and superintendent will remain in active service.

McGaugh Hosiery Mills, New Braunfels, Tex., has asked bids for a one-story addition to Mill No. 2, reported to cost over $50,000, with equipment. Roye Swartwout, New Braunfels, is architect.

New York Knitting Mills, Inc. announces the purchase of its entire corporate stock by a group long associated with the firm, namely; Joseph Berkson, Lawrence Frank, Roy Breitstein, Irving Michael, and Samuel Weiss.

Terry Hosiery Co., Asheboro, N. C., is building an addition.

V & F Hosiery Mill, Reading, Pa., has applied for charter with Willy Max Vogler, Gerhard E. Fichtner, and Nellie A. Fichtner, of Reading, as incorporators.

Rayon and Silk Mill News

Belding - Corticelli, Ltd., Montreal, Que., has begun construction of one-story mill addition with Deakin & Stewart, Ltd., Montreal, as contractors.

Canadian Industries, Ltd., Beaver Hall Hill, Montreal, Que., is reported to have plans nearing completion for a new one-story mill at Kingston, Ont., for manufacture of nylon yarns. The cost is reported at more than $170,000, with equipment.

Carolina Art Co., Gastonia, N. C., announces plans for the establishment of a weaving plant in Gastonia, to open with 24 operatives. The company also plans the establishment of a hosiery knitting plant in Gastonia.

Carpenter Mfg. Co., of Norwich, Conn., has been sold to Sam and Martin Chase, of Providence, R. I. They will continue the manufacture of tinsel cord, and other specialties.

Dionne Spinning Mills Co., Ltd., St. George de Beauce, Que., have begun an expansion program for production of rayon staple fiber yarns. Work will include installation of about 6,500 spinning spindles, as well as a large number of twisting spindles, with auxiliary machinery spinning yarns on cotton system.

E. I. du Pont de Nemours & Co., Wilmington, Del., plans construction of a new plant near Orange, Tex., to boost nylon production for military purposes at the specific request of the government. Work on the project, estimated to cost $20,000,000, is to start immediately. The plant, on a tract of about 1,000 acres adjacent to the Sabine river in southeast Texas, is to be about three miles south of Orange. It will be called the Sabine River works. The DuPont company also has plans for postwar establishment of a plant for manufacturing plastics and nylon at Hanford, Wash., according to reports from the Pacific Coast.

Finetex Co., Union City, N. J., manufacturer of elastic webbing, has sold its three-story mill between 36th and 37th St. to Raphael Atti, who

"The Boss Will See You Now"

ALL items of production costs are now getting more and more attention throughout the knitting industry. And machine operating costs are among the first to be examined closely.

Are your machines in condition to survive the ordeal of continued war production—and still be ready to meet the coming competition for civilian markets? Remember that they may have to bear the brunt of early peacetime production, while your new equipment is being delivered and installed.

S & W offers you practical assistance in keeping your S & W machines in operation on an efficient and economical basis. Our service engineers will gladly make a check-up on their condition, without cost to you. S & W will then follow through with practical recommendations for repairs, reconditioning and replacement of worn parts. Many mills are finding this special S & W wartime service of great value to their overworked personnel. We believe it will help you not only to plan ahead safely, but also to make immediate savings in minimized downtime, fewer rejects, less yarn wastage. Write today for more complete information on the S & W maintenance plan.

The high efficiency of Scott & Williams knitting machines can *only* be maintained by using genuine S & W knitting machine replacement parts. You can count on prompt delivery, too, from S & W stockrooms at Laconia. Teletype service is free from our New York and High Point, N. C., offices.

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SCOTT & WILLIAMS

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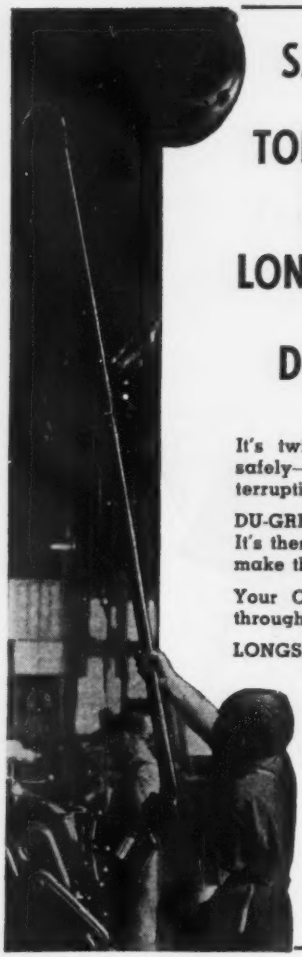
BUY WAR BONDS FOR VICTORY

EMPIRE STATE BUILDING NEW YORK 1, N. Y.

SOUTHERN SALES OFFICE: HIGH POINT, NORTH CAROLINA



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maintain
TOP BELT EFFICIENCY
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Lubricate belts with our
LONGSHOT BELT OILER
and
DU-GRIP BELT OIL
Without a ladder

It's twice as fast. You can treat belts safely—when they need it—without interrupting production.

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LONGSHOT & SHORTSHOT BEARING OILERS also available

Booklet on
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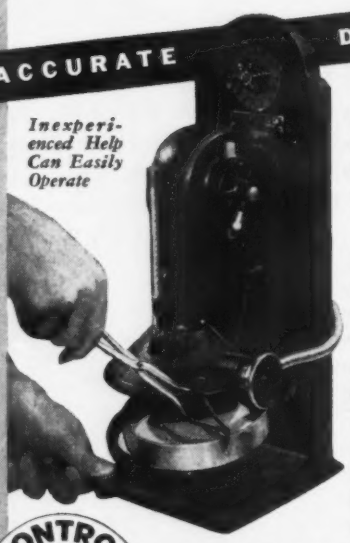
Determine Moisture Content Within a FEW MINUTES

ACCURATE DEPENDABLE



Inexperienced Help Can Easily Operate

For testing raw stock, cotton, wool, silk, rayon, yard goods, etc.

The *Moisture Teller* is an inexpensive moisture tester. It assures savings in processing time, reduces rejections and improves product quality. Successfully used by many industries.

CONTROL EQUIPMENT
SAVES TIME

Harry W. Dietert Co.
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NEWS ABOUT MILLS

will occupy it for another line of production.

Fowler, Abbott & Co., manufacturers of nylon sliver and nylon staple at Northboro, Mass., have been succeeded by Fowler, Abbott & McCreery, Inc., with B. B. McCreery as president, L. M. Fowler, vice-president, and K. G. Abbott, treasurer. Fowler is president of Palatine Dyeing Co., Inc., St. Johnsville, N. Y.

C. Earl Hodgkins & Sons, Pittsfield, Me., had its 2-story yarn mill destroyed by fire Feb. 7. Loss including rayon and yarns reached $100,000.

Manville - Jenckes Corp., Manville, R. I., and its subsidiary Woonsocket Rayon Co., Woonsocket, R. I., may have been purchased by Royal Little, president of Textron, Inc., New York, before the end of the month. Mr. Little offered $55 a share for 78,000 shares of preferred and $11 a share for 114,000 shares of common stock, and explanation of the bids has been mailed to stockholders. Manville-Jenckes operates 83,000 spindles and 3,423 looms; Woonsocket Rayon produces about 3,000,000 lb. of viscose process rayon annually.

Pansy Weaving Mills, Central Falls, R. I. have purchased one of the Manville-Jenckes Mills, at the corner of Barton and Pine Streets, Pawtucket, R. I. The firm will expand its facilities in the postwar period to 300 looms.

Prudential Mill of La France Industries, Inc., rug weaving division of company, has been purchased by Ronald A. Postlethwaite, head of Rock Hill Spinning Co., Rock Hill, S. C.

Springdale Textile Co., recently incorporated with capital of $10,000, is reported planning operation of mill in the vicinity of Stamford, Conn., for manufacture of woolen and rayon specialties. Incorporators include Benjamin H. Mead and Alexander V. Darrach, 53 Prospect St., Stamford.

United States Rubber Co., Burlington, N. C., has installed machinery in the former Daisy Hosiery Mills building, and is scheduled to begin the manufacture of yarns for surgical stockings for the armed forces as well as the covering of wire for airplane tow targets around March 1. Later materials of lastex for the hosiery trade will be made.

Processing Plant News

Copeland Converting & Finishing Co., Burlington, N. C., recently organized with capital of $200,000, plans operation of local dyeing and finishing mill. J. R. Copeland, Burlington, is principal incorporator.

Fabrics Division of Fabrics & Finishes Department, E. I. du Pont de Nemours & Co., Wilmington, Del., has been formed to take over former Fabrikoid Division, and will specialize in manufacture of coated fabrics of various kinds.

National Dyeing & Finishing Corp., Los Angeles, Calif., has been issued a license by Cluett, Peabody & Co. to use the Sanforizing process.

Oxford Dye Works, Philadelphia, Pa., has begun repair and improvement costing approximately $45,000, of their mill at 1408 East Oxford St. The contract was awarded to George K. Haebner, Inc., 1231 Vine St., Philadelphia.

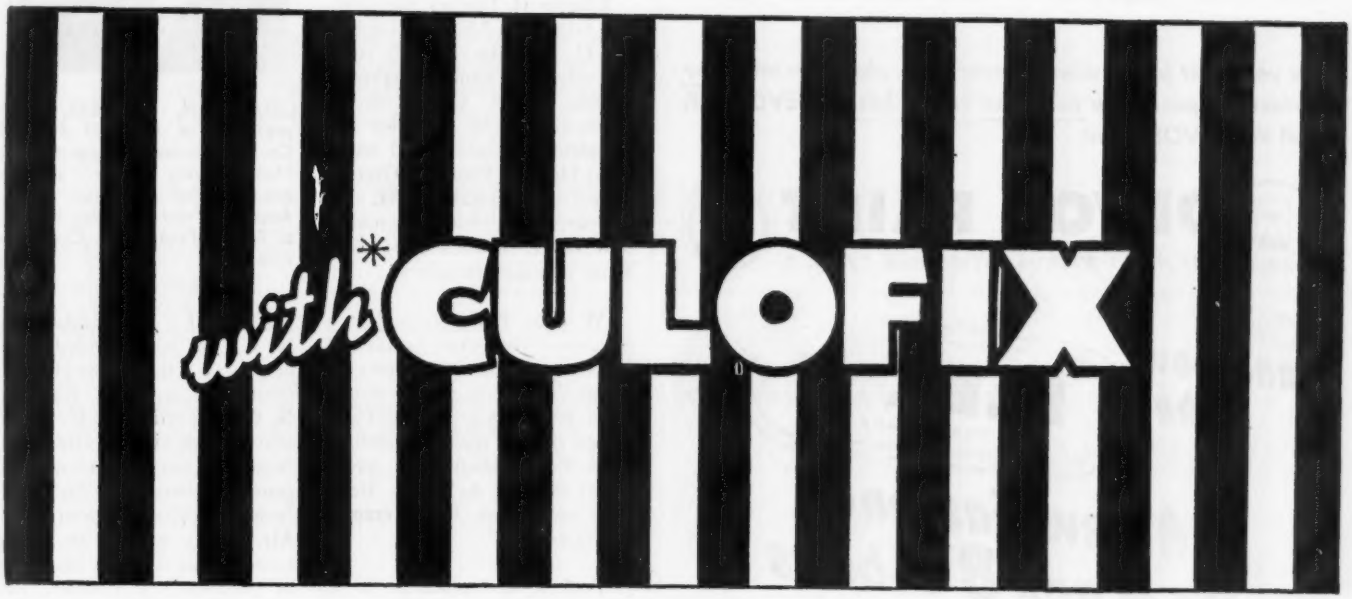
Queen Dyeing Co., Providence, R. I., has arranged for change in capital stock to $507,500, for expansion in operations.

Textile Rubber Co., Bowdon, Ga., has given contract to H. W. Richards, Carrollton, Ga., for a mill addition which will be equipped for manufacture of rubberized fabrics to protect automobile tires from wheel rims, with entire output for Government use.

Textileather Corp., Toledo, Ohio, sustained a fire loss of approximately $10,000 recently at mercerizing, dyeing, and bleaching works.

Trio Dye Works, Paterson, N. J., plant, which was recently bought by Glendale Corp. for reconversion into a dye house, will have an estimated daily capacity of 150,000 yd.

United Piece Dye Works, Lodi, N. J., has bought property at 5000 Long Beach Ave., Los Angeles, Calif., and is installing modern machinery for dyeing and finishing synthetic and mixed fabrics. The plant will be ready to start manufacturing operations next fall, according to Charles Blount, Jr., president of United. The first operations will be dyeing and finishing, but roller printing will eventually be added.



No matter where the trouble occurs — whether while the fabric is batched up after dyeing, or in the finishing bath—Culofix will improve water fastness.

Culofix used as an after treatment following the dyeing operation is especially valuable for preserving crisp detail and contrast in prints of rayons, cottons and mixtures.

It has been used with complete success for hosiery where mixed fibres are present.

Culofix not only improves water fastness of direct colors but also imparts a very desirable soft, full finish thus eliminating an extra finishing operation.

If fastness to water is essential to your direct color dyeings, write for complete data. Our technical staff is at your service without obligation.

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NEWARK **NEW JERSEY**

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A. BECAUSE IT HIDES AND COVERS MOST **ANY** SURFACE IN **JUST ONE COAT!**

This quick quiz is the answer to **DEVOPAKE'S** ever-growing popularity. Maintenance men find by comparative tests that **DEVOPAKE** hides best in one coat — saves time and money — covers more surface per gallon. Oil base — and that means a **tough** paint that really wears, stands repeated wash-downs.

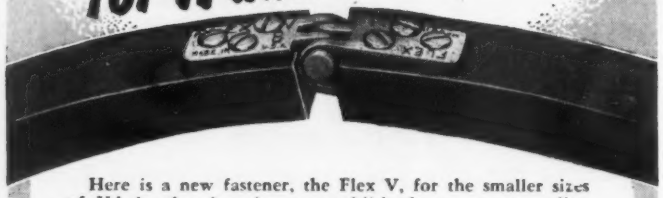
For your next job — whether over brick, plaster — most any surface — specify the paint that covers best — DEVOPAKE. Call the DEVOE agent.

DEVOE PAINT

787 FIRST AVENUE, NEW YORK 17, N. Y.

and now the **FLEX V** TRADE-MARK

A new Fastener for A and B V-belts



Here is a new fastener, the Flex V, for the smaller sizes of V-belts that is going to establish the same outstanding performance record as the Alligator V-belt fastener has already established for the larger sizes of V-belts.

This new Flex V fastener is made in two sizes for A and B section V-belts. It is simple in design, easy to apply and the separable hinge joint makes for quick replacement of V-belts without dismantling shafting or machinery. No metal touches the pulley so Flex V fastened belts can be run on a V-flat drive.

Folder No. V-12 gives complete details on this new Flex V fastener with list prices, special tools and application information. Your request will bring a copy.

Order from your supply house

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4630 LEXINGTON ST., CHICAGO 44, ILLINOIS

Also sole manufacturers of Alligator Steel Belt Lacing for flat transmission belts. Alligator V-belt Fasteners for V-belts and Flexco HD Belt Fasteners and Rip Plates for fastening and repairing conveyor belts.

NEWS ABOUT *Men*

John Cauthen, Clinton, S. C, has been appointed executive vice president and treasurer of the Cotton Manufacturers Association of South Carolina, to succeed **Dr. William P. Jacobs,** who resigned following his election as executive director of the American Cotton Manufacturers Association. Dr. Jacobs has also resigned as president of Presbyterian College, Clinton, S. C.

Charles H. Haynes, president of Cliffside Mills, Cliffside, N. C., for the last 28 years recently was named chairman of the board. Other officers elected include **Maurice A. Hendrick,** president and treasurer; **Herman Cone, of Greensboro,** vice president; **H. M. Owens,** of Cliffside, secretary; and **M. A. Bearden** of Greensboro, assistant treasurer.

W. Ray Bell was reelected president of Association of Cotton Textile Merchants of New York at a recent director's meeting in New York. Other officers reelected include **Saul F. Dribben,** vice president; **Charles A. Sweet,** treasurer and **John L. Severance,** secretary.

Paul A. Redmond, president of Alabama Mills Co., Birmingham, Ala., has been elected to the executive committee of the Cotton-Textile Institute, Inc.

W. S. Spatcher, former vice president of Fruit-of-the-Loom, Inc., Warwick, R. I., has been elected president of the Consolidated Textile Co., Inc., New York. Mr Spatcher was connected with B. B. & R. Knight and Fruit-of-the-Loom interests for almost 25 years.

Hugh M. Comer, executive vice president of Avondale Mills, Sylacauga, Ala.; **Donald B. Tansill,** vice president of Pepperell Mfg. Co., Boston; and **Lt. Col. James P. Kinard,** detailed to WPB by the War department as special assistant in the Textile, Clothing & Leather Bureau, have been appointed consultants on textile production problems to WPB.

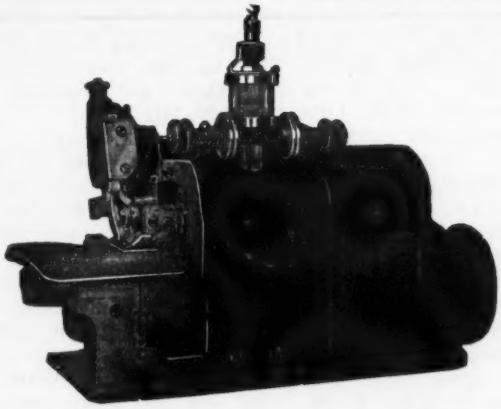
LUTHER H. HODGES, vice-president of Marshall Field & Co. and general manager of the Manufacturing Division, who has been elected a member of the Board of Trustees of the Institute of Textile Technology, Charlottesville, Va.

Elliot J. Neal, Charlotte, N. C., has been elected president of the Rex-Hanover group of mills at Gastonia, N. C., succeeding **A. G. Myers,** who resigned recently. Mr. Neal is vice president and general manager of the Aberfoyle Mfg. Co., Belmont, N. C. Mr. Myers intends to devote most of his time to his duties as president of Textiles, Inc.

Houlder Hudgins, president of the Sloane-Blabon Corp., manufacturers of hard surface floor coverings, has been elected a member of the board of directors of Alexander Smith & Sons Carpet Co. Mr. Hudgins has been active on the WPB as director of the Procurement Policy Division.

Pierre S. du Pont, former chairman of the board of E. I. Du Pont de Nemours & Co., Wilmington, N. C., was asked to preside over a recent board of directors meeting, as a tribute to his 75th birthday. Former president of the company, he is now a director and a member of the finance committee.

John H. Cheatham, Dundee Mills, Inc., Griffin, Ga., was recently elected chairman of



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MERROW HIGH SPEED

OVEREDGING, OVERSEAMING AND HEMMING MACHINES

Produces Federal Specification Stitch
Types 501, 502, 503, 504 and 505

WAR WORK DEMANDS

Quality Results—High Production
Convenient Handling
Minimum Time-Out for Adjustment
or Repair—Low Upkeep Costs

Obtain Maximum Quality Production by Using a Machine Suitably Arranged for Your Work — Our Distributors or Our Direct Representatives Are on Call to Advise You Suitable Machine Arrangements for Various War Work and Proper Care and Operation of Machine.

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STARTING ITS SECOND CENTURY

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for seamless hosiery knitting

Speak for Themselves

Up-To-Date Machines
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CRANE

KNITTING MACHINES

meet the need for Speed—
for Quality and Low Cost

CRANE Knitting Machines meet the demands of rapidly changing patterns and styles. Their middle name is versatility . . . plus smooth, fast running operation that eliminates expensive stops. Among their exclusive features are patented hardened Wing Burr Wheels and patented Thread Stop Motion. There's many a Knitting Mill in which batteries of Cranes are the mainstay of production.

Let us tell you why —and how . . . just ***WRITE***

1870 **CRANE** 1944

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Spring Latch Needle
KNITTING MACHINERY

Calibrated
FACTS
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WEARABILITY

Yours in Advance with the Taber Abraser

No need for guesswork in the testing of your own or competitor's products for wearability or resistance to surface abrasion. The Taber Abraser gives you the facts with scientific precision—yet the procedure is as practical as it is accurate. Eliminates time-consuming, expensive performance tests. Used by scores of textile manufacturers for testing the wearing qualities of all types of fabrics, even the sheerest.

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Whatever the Weaving Requirements
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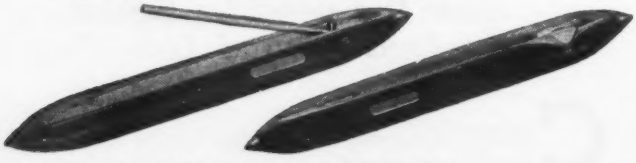
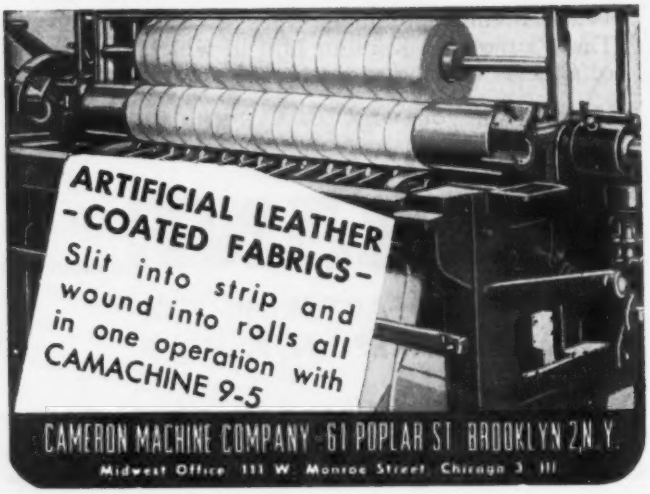


WATSON-WILLIAMS MFG. CO., Millbury, Mass.
SOUTHERN OFFICE: W. F. Daboll, John W. Littlefield, 810 Woodside Building, Greenville, S. C.
NORTHERN REPRESENTATIVE: G. C. Burbank, 32 Beaconsfield Rd., Worcester 2, Mass.


ARTIFICIAL LEATHER
-COATED FABRICS-
Slit into strip and
wound into rolls all
in one operation with
CAMACHINE 9-5
CAMERON MACHINE COMPANY 61 POPLAR ST BROOKLYN 2,N.Y.
Midwest Office 111 W. Monroe Street Chicago 3 Ill

the Nursery Products, Birdseye & Gauze Diapers Industry Advisory Committee of the OPA at the organization meeting.

L. H. Hansel, president of The Felters Co., Boston, Mass. was elected president of The Felt Association, Inc., recently. He succeeds **J. T. Lawless** who was chosen vice president. **W. J. Parker** was re-elected executive secretary-treasurer. Directors of the association for 1945 are **Herman Berglund, E. W. Booth** and **A. N. Sudduth** and Messrs. Hansel and Lawless.

Charles F. H. Johnson, Jr., vice-president of Botany Worsted Mills, Passaic, N. J., in charge of the products division, has been appointed vice president and general manager in charge of all production, promotion and sales effective March 15.

John F. Magill, president Atlanta Hosiery Mills, was elected a member of the Atlanta Textile Club at its regular monthly meeting held Feb. 5 at the Ansley Hotel.

Paul DeKoning, Portland, Ore., former production manager of the Jantzen Knitting Mills, has been elected vice president in charge of production.

Carl A. Rudisill, Cherryville, N. C., has resigned as vice president and treasurer of Howell Mfg. Co.

Elliott I. Petersen has been elected vice president in charge of production of Bigelow-Sanford Carpet Co., with offices in New York, N. Y. He relinquishes the position of superintendent at the company's Thompsonville, Conn., mill.

Dr. Frank T. De Vyver, for the last two years personnel and industrial relations director at Erwin Cotton Mills, Durham, N. C., has been elected vice president of the mills.

M. A. Bearden, Greensboro, N. C., former vice president and general manager Pomona Mfg. Co., in Greensboro, was recently elected assistant treasurer of the Cliffside Cotton Mills, Cliffside and Avelon, N. C.

Max F. Meier, fabric technician with Burlington Mills Corp., has been elected to the board of governors of the American Association of Textile Technologists, New York, for two years. He fills the vacancy created by the election of **Dr. George Linton** as second vice president of the group. Mr. Meier joined Burlington in 1939, and prior to that was with J. W. Valentine & Co. He is a graduate of the Ecole

MORE THAN 200 graduates and former students of Philadelphia Textile Institute attended the banquet held Feb. 1 by the institute's alumni association at Bellevue-Stratford Hotel, Philadelphia. Shown above (left to right) are E. Stanley Bowers of Continental Mills, Philadelphia; Col. Thomas W. Jones, Director of Procurement, Philadelphia Quartermaster Depot; and Clarence L. Ederer, Class of '17, treasurer of Ederer, Inc., Philadelphia, and president of the alumni association. Col. Jones spoke at the banquet and Mr. Ederer acted as toastmaster.

Other notables present at the affair included: Brig. Gen. M. C. Gregory, commanding officer United States Marine Corps Philadelphia Quartermaster Depot; M. Earl Heard, research director of West Point Mfg. Co., West Point, Ga. and former dean of Philadelphia Textile Institute; Col. Vere Painter, Class of '35, United States Army Quartermaster Corps, F. Everett Nutter, Class of '17, vice-president of Goodall-Sanford, Inc.; H. Wickliffe Rose, American Viscose Corp; Richard S. Cox, dean of P.T.I.

Machine and Hand Knitting

Yarns

[French-Bradford]

for

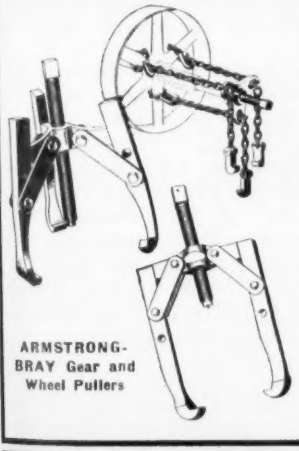
BATHING SUITS
OUTERWEAR
HOSIERY
UNDERWEAR

★

Complete color assortments

American Woolen Company

225 Fourth Avenue **New York**



ARMSTRONG-BRAY Gear and Wheel Pullers

Prompt shipment from stock

Essential Tools Today

because they save hours of time, prevent costly breakage and long shut downs.

STEELGRIP Standard Rigid Arm Gear and Wheel Pullers are of improved design. Will not slip from work. Arms are forged and heat-treated. 2-arm, 3-arm and special models. 12 types and sizes.

CHAINGRIP Universal Pullers pull wheels, solid gears, pinions, etc., even at considerable distance from end of shaft. Proof-tested chains have both chain hooks and special pulley hooks. 3-ton and 12-ton capacities.

Write for Catalog Sheets.

ARMSTRONG-BRAY & CO.
"The Belt Lacing People"
5340 Northwest Highway Chicago 30, U.S.A.

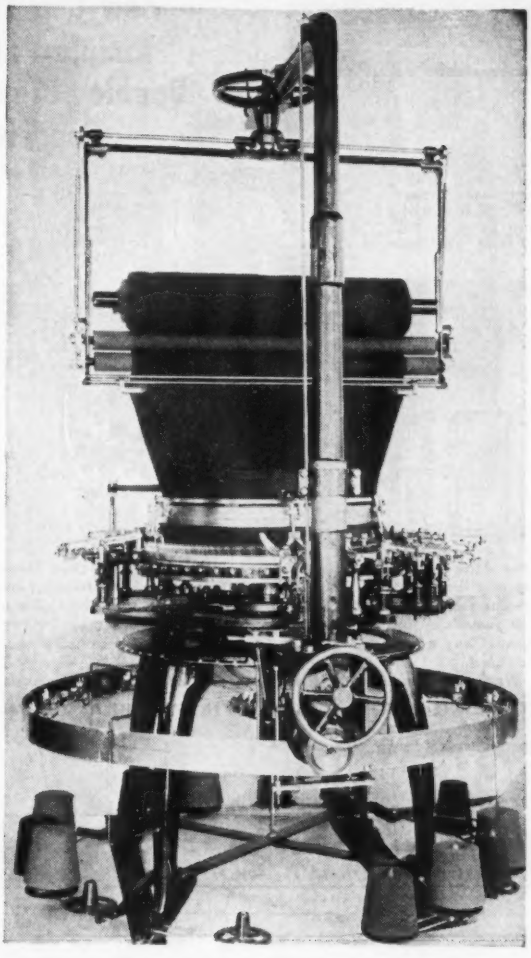
THE LOYAL T. **IVES** COMPANY EST. 1874

SPRING BEARD KNITTING NEEDLES

For Circular, Full Fashioned, Tricot and Milanese Knitting Frames, also Narrowing, Stand, Transfer Points and Welt Hooks for Full Fashioned Machines; Slides, Sinkers, Jacks, Guides or Flat Eyes, Sley and Milanese Points, Transfer Points or Quills, etc.

Sheet Metal Specialties to Order

NEW BRUNSWICK NEW JERSEY



4 reasons for using

TOMPKINS

SINGLE HEAD—SPRING NEEDLE KNITTING MACHINE

1. **50% reduction in cost of production on most coarse or fine fabrics.**
2. **Virtually double the poundage produced by earlier models of Tompkins spring needle machines.**
3. **Produces a superior quality of knitted fabric, getting the most out of every grade and size of yarn.**
4. **Basis of all statements is on actual mill performance and production on S-1 models now installed.**

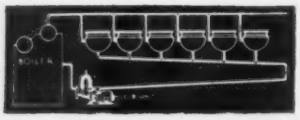
All reasons that will save you money! The new S-1 single head spring needle machine is especially designed for overcoating materials. At the same time, any fabric can be knit on it that is knit on the older type spring needle table. Production is approximately 100 yards per 8 hour day, using 6 feeds.

For further details write us direct.

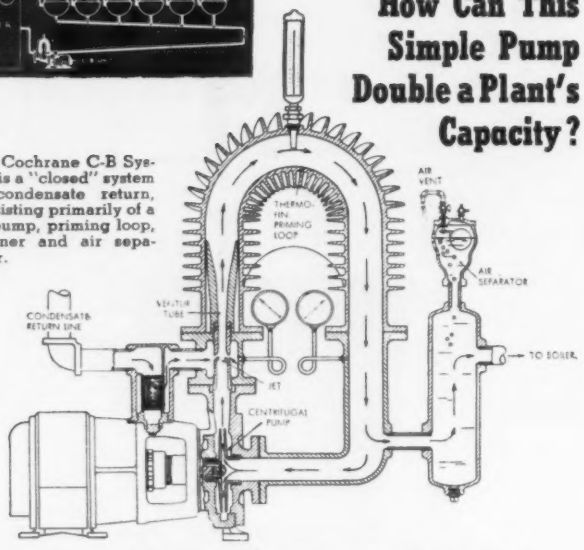
TOMPKINS BROS. CO.

INCORPORATED

ONEIDA ST. **SYRACUSE, N. Y.**



How Can This Simple Pump Double a Plant's Capacity?



The Cochrane C-B System is a "closed" system of condensate return, consisting primarily of a jet pump, priming loop, strainer and air separator.

One of the most famous manufacturers of candy in the United States reports, "Before installing the C-B unit it took 12 minutes to bring our creams and caramels to the proper cooking point. After the C-B unit was installed, this time was cut to 6 minutes." In other words, without any additional cooking equipment, *plant capacity was doubled.*

Write for details of this and other remarkable C-B records.

COCHRANE CORP., 3116 N. 17th ST., PHILA. 32, PA.

COCHRANE C-B SYSTEM

CONDENSATE RETURNED TO BOILERS AT HIGH PRESSURE AND HIGH TEMPERATURE

An Adequate Testing Routine

Base your research, purchasing, production and final inspection on an adequate testing routine—for speed, savings and Quality Insurance. The 60 models of *Scott Testers span the field of textile testing for tensile, hysteresis, twist, flexing, burst, crepeage, etc., from single hair to 1 ton tensile.

SCOTT TESTERS

* Registered Trademark

HENRY L. SCOTT CO. 95 BLACKSTONE ST. PROVIDENCE, R. I.

CHAPMAN
STATIC
NEUTRALIZER

Reduces waste and Stabilizes the production rate in many operations

USED ON

CARDS - CONDENSERS - DRAWING FRAMES
SLASHERS-WARPERS-GARNETTS-FOLDERS-DRYERS
NAPPERS - SHEARS AND MANY OTHER MACHINES

CHAPMAN ELECTRIC NEUTRALIZER CO.
BOX 268, PORTLAND, MAINE

de Tissage et Filature of Epinal, France.

William Klopman has been promoted to senior vice president; **John C. Cowan, Jr.,** to vice president and general manager; and **Britt M. Armfield** to vice president in charge of foreign operations at the Burlington Mills Corp., Greensboro, N. C.

Oliver P. Beckwith, has been loaned by Alexander Smith & Sons Carpet Co., Yonkers, N. Y., to the office of the Quartermaster General, Military Planning Division, Research and Development Branch, Textile Section Research Unit, where he will be engaged in special research work in textiles. He was in charge of physical research at the Smith Research Laboratory.

William Harris, III, was elected secretary of Roxboro Cotton Mills, Roxboro, N. C., to succeed the late George J. Cushaw; and **J. A. Long, Jr.,** was elected treasurer at a recent meeting of the board of directors. **R. L. Harris** has been re-elected president, and **Landon C. Bradsher** was elected vice president and director to succeed Mr. Cushaw. **W. D. Merritt,** vice president, and **W. W. Morrell,** superintendent, were also re-elected.

William E. Shinn, Raleigh, N. C., until recently a major in the Army's Chemical Warfare Service, has assumed his duties as head of the knitting division of the N. C. State College Textile School, Raleigh, N. C. Professor Shinn, a native of Cabarrus County and former head of the knitting department of Clemson College, will have full responsibility for developing State College's new program in hosiery, underwear, and flat knitting made possible by a recent State allocation of $25,000. Professor Shinn, who earned his B. S. and M. S. degrees at State College, first became connected with the college's Textile School in 1935 as professor of textiles.

Jackson E. Spears, vice president of National Fabrics Corp., New York, N. Y., has been appointed head of the Finished Goods Section of OPA's Consumer Goods Price Division. He has been a special consultant to the agency on the finished piece goods regulation since early this year.

JOSEPH P. GOVIN, who has been appointed manager of the export department of A. Steinam Co., Inc., cotton and rayon converters. Mr. Govin, who assumed his new position on Jan. 1, has been in the export business for the last 23 years.

E. A. Kalfahs of the Jersild Knitting Co., Neenah, Wis., and mayor of that city, was elected president of the Western District Knitted Outerwear Association at its annual meeting in Milwaukee, Wis., recently. He succeeds **John A. Sand, Jr.,** Sand Knitting Mills, Chicago, who has held the office for the last six years.

Martin H. Horchler, Bronxville, N. Y., has been appointed chief of the Wool Branch of the Wool, Cordage & Textile Machinery Division; and **William T. Dewey,** Quechee, Vt., chief of the Woolen Piece Goods Unit, according to a recent anouncement by WPB. Mr. Horchler succeeds **Joseph R. Walker** of West Tisbury, Mass., who becomes a consultant.

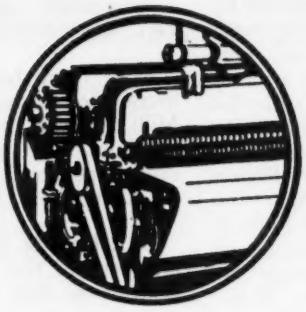
John C. Lake has become vice president and special assistant to **I. E. Solar,** president of Grenada Industries, Inc., Grenada, Miss. He has been with E. I. du Pont de Nemours & Co., Inc., for 14 years.

Peter Haynes, former manager and buyer for Excelsior Mills, Union, S. C., has been elected vice president.

C. R. Barton has recently been appointed assistant service manager of Industrial Rayon Corp., Cleveland, Ohio, and will be connected with the New York office, directing service activities on tire yarns and fabrics, mechanical yarns, and weaving yarns.

WEAVE FOR VICTORY

WEAVE FOR VICTORY



VICTOR MILL STARCH

"The Weaver's Friend"

● Always Uniform ● Dependable

● Carries Weight Into the Fabric

● Penetrates Thoroughly ● Boils Thin

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CLAUDE B. ILER
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THE KEEVER STARCH CO. . . . COLUMBUS, OHIO

WEAVE FOR VICTORY

WEAVE FOR VICTORY

WEAVE FOR VICTORY

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RARITAN, N. J.

MACHINERY
TENTERING
and DRYING

ROME SOAP MFG. CO.

MANUFACTURERS OF

Textile, Laundry

and

Special Soaps

ROME, N. Y.

WRITE US FOR
SAMPLES AND
QUOTATIONS

RAPIDASE

for de-sizing cottons, rayons and mixed goods

●

Assures rapid, dependable de-sizing

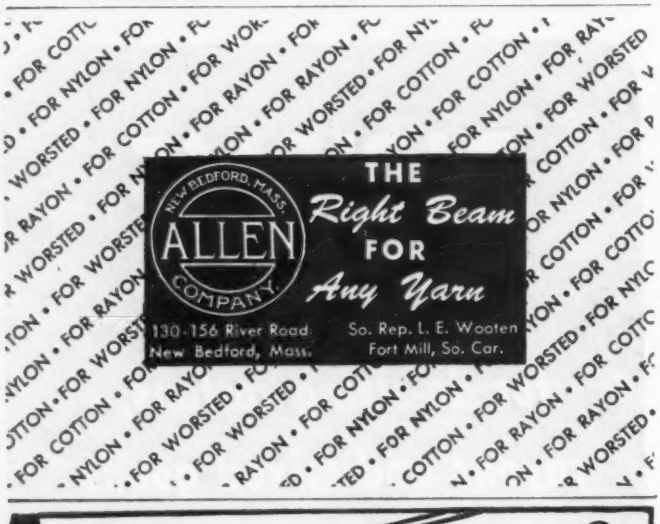
Our technical staff always at your service.

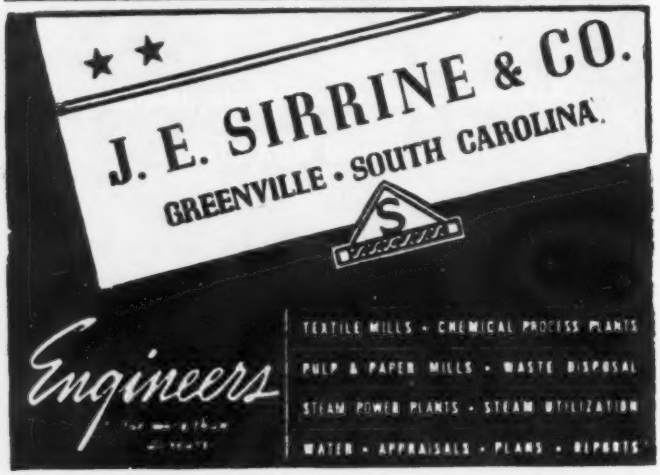
●

WALLERSTEIN COMPANY, INC.
180 MADISON AVENUE • NEW YORK

ROBISON Rayon Yarns

RAYON YARNS
for Every Purpose!
DYEING
TWISTING
CONVERTING
ROBISON
PROCESSING COMPANY, INC.
BOSTON . . . . . NEW YORK




J. E. SIRRINE & CO.
GREENVILLE • SOUTH CAROLINA
Engineers
TEXTILE MILLS • CHEMICAL PROCESS PLANTS
PULP & PAPER MILLS • WASTE DISPOSAL
STEAM POWER PLANTS • STEAM UTILIZATION
WATER • APPRAISALS • PLANS • REPORTS

NEWS ABOUT MEN

E. D. Pitcher, completing 60 years of continuous service with Marshall Field & Co., Inc., was guest of honor at a recent testimonial dinner given by his fellow-workers at Roanoke, Va. A diamond 60-year service pin was presented to Mr. Pitcher by **Luther H. Hodges,** vice president of Marshall Field & Co., and general manager of the manufacturing division. He was transferred to Spray, N. C., in 1909.

J. H. Daughdrill, was recently made general manager of the southern division of the American Thread Co., including plants at Dalton and Tallapoosa, Ga.; and Bristol, Tenn. He succeeds **J. M. Longley,** who has resigned to become president of Dalton Textile Corp.

William R. Booth, of Hastings-on-the-Hudson, who nearly a half century ago befriended **John Masefield,** now Poet Laureate of England, by obtaining a job for the 17-yr. old poet at the plant of Alexander Smith & Sons Carpet Co., at Yonkers, N. Y., observed 50 years of consecutive service at the Smith company, Feb. 14.

S. Paul Meadows has been named director of a newly-established personnel office at Hanes Dye & Finishing Co., Winston-Salem, N. C. A retirement plan for employes is being set up.

Walter L. Bumgardner has been appointed plant manager in charge of production control and employment at Chadbourn Hosiery Mills, Inc., Burlington, N. C. He has been with the company since it was organized. **Marvin Ferrell** of Durham, N. C., has become superintendent in charge of production and personnel.

J. J. Norton, Jr., has become manager of Gaffney Mfg. Co., Gaffney, S. C. He was formerly superintendent of Monarch Mills, Lockhart, S. C.

W. B. Weissblatt, Boston, Mass., has been made sole selling agent for the Belknap Mills Corp., hosiery manufacturers, of Laconia, N. H.

Ludwig Fusser, of General Dyestuff Corp., has been appointed successor to **Arne K. Gyzander,** who has been teaching the course in textile chemistry at Columbia University's evening textile courses in New York, since 1938.

E. F. Wyatt has resigned as overseer of carding at No. 3 Mill, Highland Park Mfg. Co., Charlotte, N. C., and has been made superintendent of Brodnax Cotton Mill, Brodnax, Va.

E. J. Hertwig, former superintendent of the Payne, Ga., plant of the Bibb Mfg. Co., is now superintendent of twisting and weaving at company's Columbus plant. **H. Grady Morgan** is superintendent of the No. 2 group, and **B. Funderburke** is overseer of twisting and winding at the No. 2 mill.

Cole B. Moore, formerly second hand of carding at Gossett Mills, Williamston, S. C., is now overseer of carding at Martinsville Cotton Mill Co., Inc., Martinsville, Va.

Forrest J. Campbell, formerly with Drayton Mills, Spartanburg, S. C., has become superintendent of carding of the No. 1 unit of Chadwick-Hoskins Co., Charlotte, N. C.

E. E. Smith has been made assistant superintendent of the American Woolen Mills at Enfield, N. H.

Earl E. Mathewson, former overseer of spinning preparation at Paul Whitin Mfg. Co., Northbridge, Mass., has a similar position with the Blackstone branch of the Lonsdale Co., North Smithfield, R. I.

Halsey B. Leavitt, Jr., has been made superintendent of the Spray Woolen Mill of Marshall Field & Co., Spray, N. C.

W. H. Noblett has resigned as superintendent of Ranlo Mfg. Co., Gastonia, N. C., to become superintendent of Tolar, Hart & Holt Mills, Inc., Fayetteville, N. C.

John Henry has become superintendent of carding at the Lakedale Mills, Fayetteville, N. C.

James Thompson has resigned his position as superintendent of carding at Dacotah Cotton Mills, Inc., Lexington, N. C., to accept a similar position with Wennonah Cotton Mills Co., Lexington, N. C. He is succeeded by **W. Q. Martin,** former head of carding at Hickory Spinning Co., Hickory, N. C.

Men in Armed Services

William G. Holadia, Roanoke Rapids, N. C., a graduate of North Carolina State College, who was employed by the Burlington Mills, Inc., at Greensboro, N. C., prior to entering the Army in 1941, recently was promoted to the rank of major at Eighth Air Force Headquarters in England.

William H. Dribben, on leave from the Cone Export & Commission Co., of New York, has been awarded the Soldier's Medal and Bronze Star for outstanding services in Europe. He holds rank of lieutenant-colonel and is provost defense officer on the staff of Lieut.-Gen. Carl Spaatz.

J. E. Murray, on leave as a salesman in the rayon division at Turner Halsey Co., has been promoted to lieutenant commander, according to an announcement from the Navy Department. In service since 1942, he is stationed at the Naval Aviation Supply Office in Philadelphia.

Jack Ramsey Amos, who was associated with the weaving department of White Oak Mills, Greensboro, N. C., before entering the Army is now stationed in Italy, and has received the Presidential group citation for outstanding service. He also holds the air medal. He is a corporal.

Nathan Platt, Raleigh, N. C., former textile engineer, is now a lieutenant in the Army and is serving as adjutant and supply officer in a Service Command Quartermaster Company in Europe. His group recently was commended for its part in the air-ground push that drove German armies from Northern France.

Henry C. Taylor, placed on inactive duty by the Navy, has resumed his duties as partner in Taylor, Clapp & Beall, New York. He holds rank of lieutenant commander.

Coston W. Page, a member of Page Yarn Co., Greensboro, N. C., before entering the Navy, has been honorably discharged and has resumed his place with the company. His father, **Frank L. Page,** is president of the company.

Ervin Weitzenhoffer, partner of Seminole Mfg. Co., Columbus, Miss., will resume charge of operations there after serving for two years as officer in charge of wool clothing procurement at the Philadelphia Quartermaster Depot, with rank of captain.

Irving Russakow, former president of Russbro, Inc., Jamestown, N. Y., has been promoted to captain at the Philadelphia Quartermaster Depot, where he is engaged in research work in the WAC and Nurses' Clothing section. A graduate of the Atlanta Law School, he entered the retail women's wear business in 1940.

Cephus R. Miskelley, former supervisor of the knitting department of the Nocturne Hosiery Mill, Rock Hill, S. C., now an army private, has been reported missing in action in France.

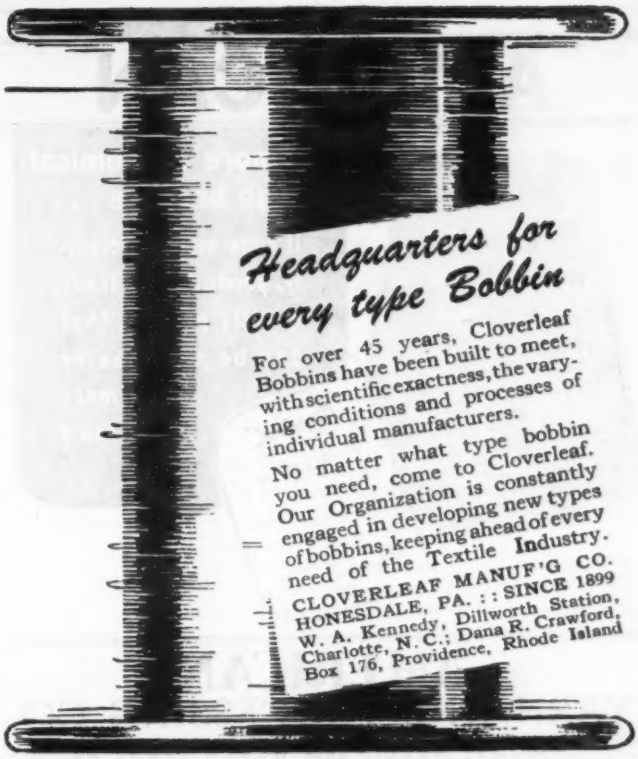
Obituary

Benjamin O. Russell, 43, president of Russell Mfg. Co., Alexander City, Ala., and former president of the Alabama Cotton Manufacturers' Association, died recently in Alexander City. Widely known in southern mill circles, he had succeeded his father as president of the Russell textile interests, and served for several months in Washington as a member of the OPA Textile Advisory Committee, and was on the executive committee of the Cotton-Textile Institute.

McBride Holt, 84, retired vice president of the L. Banks Holt Mfg. Co., Graham, N. C., died Feb. 6. He was associated with the company for 52 years.

Ben Victor May, 65, treasurer of May, McEwen, Kaiser Co., Burlington, N. C., died Feb. 27. He entered the hosiery field with the purchase of the former Daisy mill 30 years ago.

Harvey D. Leinbach, 77,


Headquarters for every type Bobbin
For over 45 years, Cloverleaf Bobbins have been built to meet, with scientific exactness, the varying conditions and processes of individual manufacturers.
No matter what type bobbin you need, come to Cloverleaf. Our Organization is constantly engaged in developing new types of bobbins, keeping ahead of every need of the Textile Industry.
CLOVERLEAF MANUF'G CO.
HONESDALE, PA. : : SINCE 1899
W. A. Kennedy, Dillworth Station, Charlotte, N. C.; Dana R. Crawford, Box 176, Providence, Rhode Island

CLOVERLEAF Bobbins . . . . . .

New type cone drive spindle and bobbin available at end of war.

TO MANUFACTURERS SEEKING AN EXPORT MARKET

Leading American Foreign Trader with record of 50 years successful operations in foreign markets is seeking additional lines of important American producers of cotton gray goods, cotton yarns, printed voiles and ribbons for distribution throughout the Orient and Latin America.

Head sales office for Latin America is established in Buenos Aires. Pre-war connections in the Orient will be immediately re-established when conditions permit. Sales agencies under guidance of experts experienced in each market.

If you are seeking clean aggressive representation write us details of your products for both immediate and postwar selling. If interested we will have a representative call on you for further discussions.

RA-182, Textile World
68 Post St., San Francisco 4, Calif.

Simplified **DESIGN**
Flexible **POWER**
Better **EVAPORATION**
More sensitive **CONTROL**

SOUTHWORTH HUMIDIFIER

Experienced textile men who know the merits of previous models of Southworth Humidifiers have found improvements in Model D that make it even more reliable and efficient.
Extreme sensitivity of control, and an "airplane propeller" type fan for greater evaporation, are two outstanding features.

NOTE
This advertisement is to remind you to include Southworth Humidifiers in your after-the-war plans. Frankly, we are 100% on war work and cannot make humidifiers at the present time.

THE SOUTHWORTH MACHINE CO.
PORTLAND MAINE

AMERICAN

. . . more economical to use because . . . . it runs more efficiently, producing a finer quality product that can be sold easier and more profitably

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HIGH POINT, N. C.
Mr. E. J. Holbrook

MOUNT HOLLY, N. C.
Mr. Edwin Hutchison
Miss E. R. Abernethy
Mr. T. J. Davis

NEW YORK, N. Y.
Mr. Rowland Swallow
Empire State Bldg.

CHICAGO, ILLINOIS
Mr. E. W. Wood
222 West Adams St.

COMMISSION
WINDING WARPING
YARN DYEING
PIECE GOODS DYEING

BLACKSTONE PLUSH MILLS, INC.
CLINTON, MASS.

INDUSTRIAL ENGINEERS
Specializing in
TEXTILES FOR MORE THAN A QUARTER OF A CENTURY

RALPH E. LOPER CO.
COST SYSTEMS WORK LOAD STUDIES
PAY ROLL CONTROLS
COST REDUCTION SURVEYS SPECIAL REPORTS
GREENVILLE SC FALL RIVER, MASS

died Feb. 14 at Reading, Pa. Until his retirement, Mr. Leinbach owned and operated Wyomissing Hosiery Mills.

William J. Roddey, 82, retired textile executive, banker, and industrialist, died Feb. 15, at Charlotte, N. C. He was a former president of Victoria Cotton Mills, and the National Union Bank of Rock Hill.

J. George Kuersten, 80, died recently in Birdsboro, Pa. Mr. Kuersten was a Reading, Pa., hosiery manufacturer for nearly 50 years, as a member of the firm of Kuersten & Rick, and in recent years as president and treasurer, of Birdsboro Knitting Mills, Inc.

William Hubeli Waldron, 80, vice president and director of John Waldron Corp., New Brunswick, N. J., founded by his grandfather in 1827, died recently. He joined the company in 1885. It manufactures coating machines for textiles as well as processing machines for other industries.

Eshelby F. Lunken, 54, president of The Lunkenheimer Co., Cincinnati, Ohio, died recently.

Howard F. Elliott, on leave from Wellington Sears & Co., has been killed in action on Biak Island in the Pacific. He was a lieutenant.

William H. Stevenson, 78, a textile operator for more than 50 years, died recently in Gonic, N. H. He had been employed by Parker-Wilder Co. in Lowell, Mass., and Gonic Mill in Gonic.

Albert H. Weis, sales manager of Metropolitan Sewing Machine Division of Willcox & Gibbs Sewing Machine Co., New York, died Feb. 22, at his home in Nyack, N. Y. He served his apprenticeship as a sewing machine mechanic in knitting mills in the Mohawk Valley, and entered the sewing machine industry in 1908 with the old Metropolitan Sewing Machine Corp.

Hugh A. Ross, 49, former technical demonstrator for the Sandoz Chemical Works, Inc., New York City, died recently He attended Glasgow University in Scotland, and the Lowell Textile School, and was employed by the Lowell Textile Works, and was later affiliated with M. T. Stevens & Sons, Merrimack Mfg. Co., and Merrimack Woolen Mills.

Charles F. Norton, 60, former sales manager for the Louis Allis Co., Milwaukee, Wis., died Feb. 11, at his home near Alhambra, N. Y.

J. W. Gillespie, 53, southwestern representative for Flexible Steel Lacing Co., of Chicago, died recently.

Joseph Amato, 54, Gera Mills' representative in Chicago for 25 years, died recently.

William T. Arnold, 75, Wyomissing, Pa., died recently. For many years he was chief bookkeeper and office manager for Berkshire Knitting Mills, Reading, Pa.

Thomas I. Barber, 70, former superintendent of Lockhart Cotton Mills, Lockhart, S. C., and the Williamston, S. C., plant of Gossett Mills, died recently in Chester, S. C.

Warren S. Lechner, Reading, Pa., formerly in charge of the receiving department at Princess Royal Hosiery Mills, Reading, Pa., died recently.

Herbert J. Hendley, Middletown, Conn., foreman of the warping and winding department of the Russell Mfg. Co., died Feb. 15.

Robert H. Inman, 66, superintendent of carding of Proximity Mills, Greensboro, N. C., and an employee of these mills since 1900, died recently.

Calvin Lawrence Spargo, 58, Stanley, N. C., superintendent of Lola Mills in Stanley, died recently.

Evan Andrew, former superintendent of Bassett-Walker Knitting Co., Bassett, Va., until his retirement in 1943, died recently in Utica, N. Y.

Willard H. Kimball, retired master mechanic at the Great Falls Bleachery & Dye Works, Somersworth, N. H., died recently.

Clarence O. Hartsell, 48, paymaster and shipping clerk for Flint Mfg. Co., Gastonia, N. C., died recently.

POSITIONS OPEN

IN LEADING TEXTILE CONCERN

DEVELOPMENT ENGINEER 30–40 years of age. $3,500–$4,500 base salary plus 30% overtime. Must have B.S. in M.E. or equivalent. A minimum of 5 years in engineering work, including machine designing, laboratory or practical work requiring use of scientific principles. Duties to initiate, develop and carry out, under proper direction projects involving the application of synthetic fibers in industrial usages. This will include cooperative work with industries within and without textile field. This is a permanent position with a future dependent entirely upon ability of applicant.

SECOND HAND IN DYEING 38-or over, or 4F. $2,000 plus $600 overtime. Experience as machine operator on dyeing and finishing of rayon and rayon blend piece goods. An opportunity to learn dyeing and finishing on a large number of fabrics and fiber blends.

Applicants should apply

Charles P. Raymond Service, Inc.

294 Washington St., Boston, Mass.

WANTED

LACE DRAFTSMAN

Experienced, by well established firm in New York State. Apply in writing, stating details of experience.

330 W. 42nd St., New York 18, N. Y.

P-205, Textile World

Read AIM . . .

The illustrated monthly magazine for all those interested in Industrial Physical Fitness. Covers all phases sports, recreation, promotion, management. Special offer 7 issues $1.00 plus free 34 page Personal Physical Fitness Guide. Write

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Interesting booklet concerning Inventions, Patents, Trade-Marks and Copyrights, together with Schedule of Government and Attorney's Fees, sent without obligation. Simply ask for "booklet and schedule."

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DESIGN & MANAGEMENT CORP.

Engineering, Design & Development; Labor-Saving & Textile Machinery, Inventions & Products Developed, Fabric Analysis under direct supervision of *Otto Engelhard, Noted Textile Expert.* Automatic, Hydraulic, Pneumatic, Plastic and Rubber Machinery; Tool, Electrical and Electronic Design; Standard Cost Systems, Wage Incentives, Time & Motion Studies, Job Eval., Reconversion.

82 Beaver Street New York 5, N. Y.

POSITIONS VACANT

KNITTER AND mechanic on seamless hosiery machines. Excellent opportunity. Apply—Ainslie Knitting Machine Co., Inc., 750 Grand Street, Brooklyn, N. Y.

WANTED: A Young man as designer in a fine cotton goods mill in New England. Greige and colored, plain and dobby fabrics. P-217, Textile World, 330 W. 42nd St., New York 18, N. Y.

WANTED: MAN to take charge of quality testing laboratory experience with cotton and synthetic textiles desirable. Work will include physical and chemical analysis in relation to research and development and promotional activities of national service organization. Location Dallas, Texas. Write including education, experience, and expected salary range. National Cotton Council of America, P. O. Box M, University Station, Austin 12, Texas.

TEXTILE ENGINEER—Excellent opportunity in essential industry for a young man with research ability in engineering. Permanent responsible position with reliable progressive textile manufacturer. Development program requires initiative. State age, training and experience. Include photo. P-218, Textile World, 330 W. 42nd St., New York 18, N. Y.

WANTED: Personnel Director for four textile plants. Man with experience preferred. State age, experience, references, and salary desired in first letter. P-219, Textile World, 330 W. 42nd St., New York 18, N. Y.

WANTED: Superintendent for Yarn Plant located in Western North Carolina. State age, experience, and references in first letter. P-220, Textile World, 330 W. 42nd St., New York 18, N. Y.

WANTED: EXPERIENCED Textile Man, preferably with textile school training, who can teach loom fixing on C&K S-3 looms. Give classes in rayon weaving and throwing, and has good knowledge of latest developments in synthetic yarns and textile machinery. Give full details regarding experience and salary expected, P-221, Textile World, 330 W. 42nd St., New York 18, N. Y.

MAN WANTED for Eastern Penna. Plant to supervise 100 sewing machine operators. Salary commensurate with experience and ability. Post-war security. P-222, Textile World, 330 W. 42nd St., New York 18, N. Y.

PROMINENT TEXTILE publication has opening in its advertising department for a promotion man who combines advertising writing ability with intimate knowledge of textile mill operations. Apply, giving complete details of past experience, age, drafts status and salary requirements to P-214, Textile World, 330 W. 42nd St., New York 18, N. Y.

POSITIONS WANTED

TEXTILE EXECUTIVE available highly capable cotton manufacturer broad experience in yarns and fabrics including rayon, blends and mixtures. Successful record of aggressive modern management. American, 38, textile education, good reasons for seeking new connection and management, agent or superintendent. PW-195, Textile World, 330 W. 42nd St., New York 18, N. Y.

(Continued on page 238)

NO POSTWAR SLUMP FOR YOU, BROTHER!

EXPORT TO AUSTRALIA!

Active young man, 28, vocational training at Textile Engineering Dept. of Superior Textile Technical College Chemnitz (Germany), seeks representation in Australia of American manufacturers of textile products, machinery or chemicals used in the textile trade.

RA-208, Textile World

68 Post St., San Francisco 4, Calif.

WANTED

ENGINEERS

MACHINE DEVELOPMENT

Graduate engineer or equivalent, experienced in the design and development of special and experimental machines. Men with creative ability required, experienced in such lines as automatic, semi-automatic, or ordnance equipment.

Must be thoroughly acquainted with modern methods and shop practices and capable of developing new ideas in conjunction with modern mechanical laboratory facilities.

State age, marital status, details of education, experience, draft status, present salary and salary expected. Enclose recent photograph or snapshot.

Post-war opportunity.

Applicants must be able to obtain Statement of Availability.

E. I. du Pont de Nemours & Company, Inc., Personnel Division. Wilmington 98, Delaware.

WANTED

PRODUCTION MANAGER BRAIDED RUG MILL

Large eastern cotton rug manufacturer has opening in organization for production manager in braided rug division; excellent future for right man who must be conversant with all phases of business including raw materials, labor training, styling. State full details experience, age, compensation desired, etc. All replies will be held strictly confidential.

P-209, Textile World

330 West 42nd St., New York 18, N. Y.

WANTED

BY REPUTABLE SOUTHERN PIECE DYE HOUSE

Dyer and Finisher:	for second shift experienced on rayon and acetate.
Assistant Engineer:	experienced in maintenance of equipment in dyehouse and finishing department.
Examiner:	thorough and determined to uphold high standard.
Office Manager:	capable to supervise all office work.

Steady positions with excellent post-war opportunities.

P-215, Textile World

330 West 42nd St., New York 18, N. Y.

Woolen Mill Wanted

Woolen Manufacturer with Expert Styling And Own Distributing Organization Will Purchase Part (Or Full) Interest in Woolen Mill. Present Management To Continue Operating, Preferably Retaining A Financial Interest. Investment May Include Expansion Or Modernization As Required. Write to

BO-204, Textile World

330 West 42nd St., New York 18, N. Y.

THERE ARE MANY ATTRACTIVE OPENINGS IN MILLS

In all sections of the United States and Canada. If you are seeking employment, write us fully regarding your experience and position desired; we will inform you of positions now open in your line of work.

CHARLES P. RAYMOND SERVICE, Inc.

294 WASHINGTON STREET BOSTON 8, MASS.

Over 45 years' confidential employment service for men seeking positions and employers seeking men.

Additional Wanted Ads on page 244

FOR SALE

WOOLEN YARN SPINNING MILL

Located in Central New England. Producing 25,000 lbs. weekly and showing a substantial profit.

Mill now operating with full employment under excellent labor relations.

Mill equipped with all necessary preparatory machinery and latest twisters. All machinery in top notch running condition and comprises a complete unit.

Inquiries are solicited from principals who are financially ready for immediate negotiation. All replies must be handled in strictest confidence.

Write

BO-207, Textile World

330 West 42nd Street, New York 18, New York

FOR SALE

45—**Whitin Tape Driven Spinning Frames, 240 spindles each, 1¾" rings, 3¼" gauge, Metallic Thread Boards, Separators, year 1922.**

156—**Model E Draper Looms, 40" cloth, 45" between swords, Lacey Top. Crompton & Knowles Looms, 82" between swords, 4x4, 25 harness C. & K. Dobby Heads, individually motor driven with 1 HP motors, 440 volts, 2 phase, 60 cycles. Skene & Devallee Wool Top Back Washers complete with creels, dryers and gill boxes.**

16—**Fales & Jenks Spinning Frames, 3" gauge, 256 spindles each, 1⅜" rings, band drive, 7" traverse, double boss.**

3—**60" McCreary Napping Machines, each with 10 rolls, with change gears and examining lights. One machine with internal gear drive: 5 HP Watson Motor, A.C. 2/60/220, 1140 RPM resistance box and fuse switch box. Two machines with roller chain drive: 5 HP Watson motor, A.C., 2/60/220 volt, 1150 RPM resistance box and fuse switch box.**

INDUSTRIAL PLANTS CORPORATION

Department

PAUL F. LOWINGER & CO.

90 West Broadway **New York 7, N. Y.**

GAINES TEXTILE MACHINERY CO.

Dealers In Rebuilt and Guaranteed Yarn Winding and Spinning Machinery

141-45 West 17th Street **New York 11, N. Y.**

Subject to Prior Sale and Refusals.

IMMEDIATE DELIVERIES

6—**garnett outfits consisting of** 5 two cylinder 20"x60" P & S Double doffer garnetts, one two cylinder 20"x60" P & S Double doffer garnetts, one two cylinder 20"x60 Hunter single doffer garnetts, running onto one camelback floor section. 16" double doffers, all ball bearing, with later type chain and sprocket worker drive. **Note:** prefer to sell as compplete unit, but will divide up into separate units. Clothing 14-16 thread.

2—cylinder 20"x60" P & S double doffer Proctor & Schwartz garnett machines, running onto one floor section, with camelbacks, 16" double doffers, all ball bearing, with later type chain and sprocket worker drive. Clothing 14-16 threads.

4—two cylinder 20"x60" Hunter single doffer garnetts, (JUTE) ball bearing, with later-type chain and sprocket worker drive, clothing 8-10 threads to inch, running onto Hunter type gear driven 128" wide blamire lappers, all separate units.

4—**garnett outfits consisting of** 2-two cylinder 20"x60 double doffer Proctor & Schwartz garnett machines, two-two cylinder 20"x60" Clearfield (Klenk & Miller) single doffer garnett machines, all ball bearing, with later type chain and sprocket worker drive, 16-18 threads to inch, running onto one camelback floor apron. Prefer to sell as complete unit, but will divide into separate units.
All of the above have excellent clothing, and walls of cylinders are thick.

1—two cylinder 20"x60" Hunter garnett machine, plain bearings, with blamire lapper.

1—two cylinder 20"x60" Hunter garnett machine, plain bearings, with Hunter stationary lapper.

1—#470, Proctor & Schwartz 20"x60" two cylinder garnett machine, ball bearing, with later type chain and sprocket worker drive, with P & S camelback lapper.

1—one cylinder 20"x60" P & S garnett machine, with blamire lapper.

1—one cylinder 20"x60" S & F garnett machine with blamire lapper.

1—three cylinder 30" by 60" S & F garnett machine, with breast and feeder (Shoddy type) brand new clothing 18-22-24 threads to inch.

1—Belt type stock conveyor for four garnett machines.

1—Worm type stock conveyor for four garnett machines.

3—36" Saco-Lowell (Kitson) ceiling condensers.

3—#45 B. F. Sturtevant blowers or fans.

2—128" Hunter Needle looms or punches, extra needle bars, slitter and wind up rolls.

1—Fales Multiple stitching machine, for pads, etc.

2—Commercial batt-folders, for stain pads, etc.

6—Proctor & Schwartz screen machines.

2—60" P & S camelback running out units (only).

1—60" Hunter stationary running out lapper unit, (only).

6—Change-overs, for double doffer 60" P & S garnetts, including double doffer frames, double doffer arches, doffers and fancies.

1—Clearfields 5-blade slitter.

1—Hunter set of compresion rolls.

1—Hunter automatic cut-off and folder.

4—Hunter winding drums.

3—Reeves variable speeds.

4—willows or dusters.

2—Hunter filling machines.

6—model "C" Droll roll edge machines.

1—complete shoddy waste plant consisting of 3-garnetts, 3-shoddy pickers, etc.

1—Shoddy plant, Big Ben Pickers, motors, etc.

10—Crompton & Knowles, Hat Band Ribber Looms, with winders and warpers and supplies.

1—Droll Compressor tufter and looper.

1—United Mattress Cotton Tufter.

1—Droll Tape edge machine.

1—Franke Mattress filling machine.

3—Cotton Pickers.

1—Sterlizer.

3—Excelsior pickers.

1—Kapox Picker.

12—Singer sewing machines.

1—Mattress border machine.

1—Mattress closing in machine.

2—Dugan (Franke) pickers.

2—10 foot, Cotton waste openers and cleaners.

2—Auto. Scroll Comforter Stitching machines.

We will very gladly quote you on other machinery by request.

H. B. LINCOLN, JR., P. O. Box Number 11, Swarthmore, Pa.

POSITIONS WANTED

(Continued from page 237)

MANAGER OF Cotton mill. Man with 25 years practical and technical experience producing carded combed and blended yarns, would like to be given the opportunity to manage an inefficient mill on a salary and bonus basis. At present employed. Age 45, married with a family. PW-198, Textile World, 330 W. 42nd St., New York 18, N. Y.

F.F. HOSIERY Filer, with twenty-five years experience, erecting, finishing, and filing on almost all types machines. PW-223, Textile World, 520 N. Michigan Ave., Chicago 11, Ill.

WANTED—Position as superintendent of average size rayon weaving mill, or assistant superintendent of large mill. 12 years experience on all types of rayon yarns, some technical training, married, sober, good manager of help. PW-224, Textile World, 330 W. 42nd St., New York 18, N. Y.

WOOLEN MILL Superintendent — Textile school graduate with ten years of excellent practical experience seeks new position. Now employed, and for the past six years, by highly successful fancy woman's wear woolen mill. Can design, cost, manipulate blends, and make good yarn for all types of cloaking, suitings, and dress goods. Salary at least $5000. South American connection considered. PW-225, Textile World, 330 W. 42nd St., New York 18, N. Y.

WOOLEN SUPERINTENDENT wishes to make change. Excellent manager of help. Twenty-five years experience on menswear and womenswear. Complete knowledge of all departments from raw stock to finished goods. Practical experience in the blending of all types of fibers. Age 48, married, good reason for making change. Now employed. PW-226, Textile World, 330 W. 42nd St., New York 18, N. Y.

SUPERINTENDENT OF Dyeing over twenty years experience in piece dyeing, gabardines, tropical worsteds, silk-white worsteds, serges, and acid piece dyeing ladies wear—also package and jackspool dyeing. Full information on request. PW-228, Textile World, 330 W. 42nd St., New York 18, N. Y.

BUSINESS OPPORTUNITY

WANTED—PRODUCT for manufacture of sale. Manufacturer of flat-weave floor coverings is seeking suitable product for immediate or post-war manufacture or sale. BO-227, Textile World, 520 N. Michigan Ave., Chicago 11, Ill.

(See Auction ad page 242)

FOR SALE

One good mill building in Piedmont Section of South Carolina. Large enough for 400 looms and necessary carding and spinning equipment. Has power plant to develop minimum of 600 H.P. Plenty warehouse space. 80 houses to go with mill if desired. 450 acre land.

BO-206, Textile World
330 W. 42nd St., New York 18, New York

FOR SALE

Complete Duck Weaving Plant. No dealers.

FS-210, Textile World
330 West 42nd St., New York 18, N. Y.

TEXTILE MACHINERY

ENGINEERS & EXPORTERS

Appraisals & Liquidations

S. B. SCHWARTZ COMPANY

7301 PLUM ST. NEW ORLEANS, U.S.A.

FOR SALE

30" LOOMS

75—Draper 30" Model E used looms in good condition. Complete with Lacey top motions, pulleys, shafting, beams, etc. Located in South.

AMES BAG CO.

10 East 40th St. **New York, N. Y.**

AIR COMPRESSORS

17—355, 528, 730 & 1100 ft. Cap.

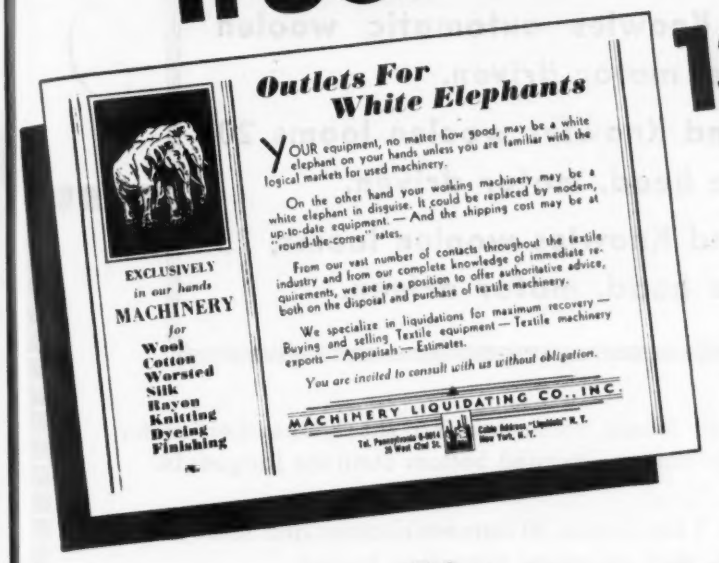
DIESEL UNITS

260 H.P. Superior 600 RPM Engine.
240 H.P. Worthington 3/60/2300 Generator.
130 H.P. DeLavergne 3/60/220 V. Generator.

R. C. STANHOPE, INC.

60 East 42nd St. **New York, N. Y.**

Truer To-day than 13 years ago!


Outlets For White Elephants
YOUR equipment, no matter how good, may be a white elephant on your hands unless you are familiar with the logical markets for used machinery.
On the other hand your working machinery may be a white elephant in disguise. It could be replaced by modern, up-to-date equipment. — And the shipping cost may be at "round-the-corner" rates.
From our vast number of contacts throughout the textile industry and from our complete knowledge of immediate requirements, we are in a position to offer authoritative advice, both on the disposal and purchase of textile machinery.
We specialize in liquidations for maximum recovery — Buying and selling Textile equipment — Textile machinery exports — Appraisals — Estimates.
You are invited to consult with us without obligation.
EXCLUSIVELY in our hands
MACHINERY
for
Wool
Cotton
Worsted
Silk
Rayon
Knitting
Dyeing
Finishing
MACHINERY LIQUIDATING CO., INC.

Here's an ad ◄MLC► ran back in 1932. Today, changes in production and the need for bringing mills up to date make it even MORE important to get rid of and replace obsolete or worn equipment. Today ◄MLC► stands ready to help you, with many MORE years of experience, many MORE buying and selling contacts. Whatever your problem—to sell a complete mill—to liquidate complete mill equipment—or to convert idle machines into cash instantly—◄MLC► is the logical company to handle it.

P. S.—And when you need extra equipment, ◄MLC► should be at the top of your list.

If you want to BUY equipment here's what MLC has to offer . . .

3—46" x 52" Button Breakers
3—42" Butterworth 3-Roll Friction and Rolling Calender, 1—motor driven, 2-belt dr.
1—60" D. & F. 2-cyl. Iron Shoddy Card
2—100 Spindle Foster Model 25 Doublers
1—36" Doubling & Winding Machine
1—46" Windle Doubler
1—6 Delv. Whitin Drawing Frame with 12" coiler, and motor
1—4 and one 6 delv. H & B dr. frame
1—Franklin Package Dyeing Unit, incl. three 100-lb. and one 300-lb. machine, extractor and winders
1—Laboratory Hydro Extractor
1—30" American Laundry belt driven extractor
1—42" Fletcher extractor belt driven.
2—Hunter No. 10 Fulling Mills
10—40" C&M 42", 46", 50", 100" Folding Machines
1—52" James Smith Card Grinder
8—1200 h. Halton Jacquards, 9" lift
60—42" Modified "E" Draper with roller tops, 47½" reed space, belt driven
18—82" C & K 4 x 4 25 Harness Belt driven woolen looms
1—336 spindle Johnson & Bassett 2" gauge mule with 24 drums.
2—40" H & B Single Process Pickers
3—65½" Voelker double bed rotary cloth presses belt driven 16" cyl.

SPECIALS

1—80" Butterworth 3 roll Calender
1—Complete Set Combers including:
1—Whitin Ribbon Lapper
1—Whitin Silver Lapper
8—Whitin Model "C" Combers
12—76" cloth Draper modified D automatic Looms, 81" reed space with Lacy tops for 6 harness work, motor driven
1—90" D.&F. Single Acting 14 Roll Napper
1—80' Butterworth clip Tenter with 80" opening
1—92" D.&F. Warper with Beamers
4—82" D.&F. Warpers with Beamers, etc.
2—54" Entwistle Warpers

1—66" Gessner double bed rotary cloth press belt driven 12" diameter roll.
2—50" Dinsmore Inspecting, Sewing & Rolling Machines, Mtr. Dr.
1—60" C & M Plush Shear, Arranged for Mtr. Dr.
1—66" Voelker Cloth Press 12" cyl.
2—66" C & M 2-Blade Shears
12—66" P & W 2-Blade Shears
1—66½" P & W Model A 2-Blade Shear
1—72" Monforts 2-Blade Shear
1—Schultze 106" Double Shear
1—Smith & Furbush Rag Shredder
1—42" C. & M. 5 Burner Gas Singer
1—82" Saco Lowell hot air Slasher
1—Phillips 2 cyl. cotton Slasher
1—Single cyl. Saco Lowell Slasher
6—24 Spindle Fairmont Drum Spoolers for 4½ x 6" spools
10,000—4½ x 6" Wooden Spools
6—120 Spindle Draper Spoolers wi. Tensions
2—Warp Compressor Machine Co., Multiple Jack Spoolers
1—60' C & M Tiger, Arranged for Mtr. Dr.
2—100 Spindle Foster #12 tube winders, belt driven
1—200-spindle Draper 2¼" Ring Tape Drive Twister
1—108-spindle F J 4½" ring Tape Drive Twister
1—Barber Coleman Auto. Warp Tying Mach., size 4-E
24—72" Stafford 2x1 automatic Looms 77" reed space, 25 harness head motions, motor driven
1—24" Parkhurst Burr Picker, Reconditioned

MACHINERY LIQUIDATING COMPANY

OPA REGISTRATION NUMBER 789

EST. MLC 1923

31-33 West 42nd Street — NEW YORK 18, N. Y.

DOMESTIC — TELEPHONE PEnnsylvania 6-8014 — EXPORT

DEALERS IN TEXTILE MACHINERY, ACCESSORIES AND MILL SUPPLIES

• Special •

24—4x1 Crompton and Knowles automatic woolen looms 76" reed space, motor driven.

24—72" 4x4 Crompton and Knowles woolen looms 20 harness, intermediate head, motor driven.

10—76" 4x4 Crompton and Knowles woolen looms, 25 harness, intermediate head, motor driven.

30—4 x 4, 72" Crompton & Knowles Worcester looms, roller bearing shock absorber, motor driven, 1 HP, 3 Phase motors, oversized shuttle boxes, extended bottom shaft for Jacquards.

24—48" Crompton & Knowles Worcester 2 x 2 box looms, 20 harness dobbies and multipliers, individually motor driven, warp stop motions, pick counters, paperless beams.

16—Crompton & Knowles, 4 x 4, 82" reed space, 25 harness intermediate heads, large shuttle boxes, woolen looms, individually motor driven, complete with 1 HP, 3 Phase, 60 cycle, 220 volt motors.

32—Crompton & Knowles, 4 x 1, 52" Looms, roller bearing, shock absorber, high pickwheel, removable cloth rollers individually motor driven, warp stop motions and pick counters.

1 set—60" wide, metal, double cylinder card with practically new card clothing.

200 Universal #90 quillers or coppers, with or without bunch builders, belt driven or motor driven.

Sipp or Eastwood winders to wind from skein to spool.
Sipp or Eastwood warpers and creels.

Over 100 Jacquard Machines 624 hook coarse index
Over 60 Jacquard Machines 1304 hook fine index
Over 40 Jacquard Machines 2608 hook fine index
} ALL DOUBLE LIFT

Looms, Warpers, Winders | **Jacquard Machines, Spinning and Throwing Machines** | **Dyeing Machines, Textile Motors, Shuttles - Quillers** | **Coppers, Finishing Machine Harnesses**

CONTACT US FOR QUICK ACTION ON TEXTILE EQUIPMENT

PATERSON
SILK MACHINERY EXCHANGE

24 SPRUCE STREET *SHERWOOD 2-1363-4 5* **PATERSON, N. J.**

FOR SALE

The following machines are offered for immediate sale at attractive prices and can be seen set up and operating. We suggest you communicate immediately.

DECATER, Curtis & Marble, 72" with No. 2 Nash Pump.

EXTRACTOR, Tolhurst, 48" Copper Basket.

3—FULLING MILLS, Hunter, No. 10, excellent condition, arranged for pulley drive with clutches.

MEASURING MACHINE, Parks & Woolson, with inspection table and metor Vee Belt drive.

NAPPER, Davis & Furber, 20 roll, single acting 66".

NAPPER, David Gessner, 20 roll, double acting 72" equipped with steamer, Vee belt drive, 7½ HP, 3 phase 60 cycle 220 volt motor.

NAPPER, Ernest Gessner, 12 roll, single acting 70" equipped with steamer arrange for Vee belt drive.

3—SEWING MACHINES, Arlington foot or hand powered bicycle.

SHEAR, Parks & Woolson, Double, 66" Vee belt drive.

TENTER, Butterworth, 5 Pass return pin, 33' x 72" wide, to take goods 72" maximum, driven by No. 3 Reeves with a 10 HP and 5 HP AC 3 phase 60 cycle 220 volt motors.

DRY TIGER, Parks & Woolson, 2 roll, with steam arrangement, arranged for Vee belt drive.

DRY TIGER, Curtis & Marble, single roll, Vee belt driven by a 1½ HP 3 phase 60 cycle 220 volt motor.

WOOL WASHER, James Hunter, 6', 2 maple 20" dia. Spring loaded rolls, with manifold, electric light, pulley drive with clutches.

WOOL WASHER, James Hunter, 8', 2 maple 20" dia. spring loaded rolls, with manifold, electric light, pulley drive with clutches.

FS-216, Textile World
330 West 42nd St., New York 18, N. Y.

FOR SALE

TEN FLETCHER DUPLEX 5B MACHINES

the latest type.

Serial#'s 2096 2097 2137 2138 2139 2140 2141 2142 2143 2144

These machines have 100 spindles each, 5¼" spacing, 3½" Eadie rings, 2 drop-wires to each spindle and 4" traverse. They have 3 H.P. motor each 550 Volt-3 phase. The machines are 25½ ft. long, 19" wide, and we can furnish gears for twist rings as follows: 3, 6, 9, 12, 5 and 20 turns. One internal gear for each machine for higher twist than 20 turns.

We also have 13000 Duplex Fibre Spools, ½ lb. package, for the above machines.

We are offering these machines, F.O.B. mill floor, North Carolina.

United Yarn Products Company
285 Straight St.
Paterson, New Jersey

Two Cashiko tape condensers for 48" wide cards, 112 ends (four spools, 28 ends to a spool), complete with 36" doffer.

One two-cylinder Furbush breaker-card 48" diameter 60" wide wood cylinders.

Two James Smith finisher-cards, 48" x 60" wood cylinders.

Barker 60" condenser with twin apron and 20" ring doffers.

DOYLE & MILLER
6600 Baltimore Ave., Fernwood, Pa.

"CONSOLIDATED"

FOR SAVING TIME AND MONEY

EXTRACTORS

6—V.V. & Tolhurst 54" & 60"; rubber & copper baskets.
8—V.V. Fletcher & Tolhurst 40-48", copper lined.
10—Tolhurst, American Laundry, Bock & Troy 14"-42", copper baskets.

SCOURING & DYEING

2—Haveg Washers, completely enclosed.
1—Sargent 3-Bowl Skein Scouring machine.
6—Klauder-Weldon Skein Dyeing Machines.
1—1000# Raw Stock Dyeing Machine.
1—Obermaier Dyeing Machine.
2—Buhlman 100-arm skein dyeing machines.
1—Smith Drum Skein Dyeing Machine.
3—Double Tier Combination Bean & Package Dyers.

DRYERS

3—National & P & S Loop Dryers, 30-65' long.
1—P & S 72" Raw Stock Dryer, automatic feed.
1—Phila. Raw Stock Dryer, 48", automatic feeder.
3—Sargent & Hunter Wool Carbonizers.
2—P. & S. Oven type Package Dryers.
4—Truck Dryers, 1 & 2 trucks.
1—Multipass Airlay Dryer.
6—Proctor & Schwartz Yarn Dryers.
1—Pin Tenter Dryer, 64" wide.
1—V.V. 5-Tier Net Dryer.
2—Heathcote and Kenyon Cloth Dryers.
1—Proctor & Schwartz Hosiery Dryer.

NAPPERS

2—D & F single acting Nappers, 60 & 84".
3—Gessner & Woonsocket double acting Nappers, 60", 84" & 90".

TENTER FRAMES

1—Textile Fin. Mach. 90'x50" Tenter.
1—W & J 80'x50" Swing Tenter.
1—Heathcote Pin Tenter.
1—25' Tenter with Bakelite clips.

PALMER QUETCHES & TENTERS

2—V.V. Palmers, 60" & 72".
3—Morrison & V.V. 50", 60" & 72" Palmer Quetches.
1—Butterworth 84" Palmer Quetch Unit.
2—V.V. & General Machine 60" Palmerettes.

PADDERS, MANGLES, QUETCHES

5—Textile & Butterworth 2-Roll Padders, 50", 62" & 90".
4—Butterworth 50" 2-Roll Starch Mangles.
1—James Hunter 50" Water Manger.
5—Butterworth & Morrison 2 & 3-roll Quetches, 50-72".

BUTTON BREAKERS

3—Morrison & V.V. Button Breakers, 50-72", brass rolls.

BEAMERS—BATCHERS

4—Van Vlaanderen 50" & 60" Beamers.
9—Batchers, 48", 50" & 72".

FLAT FOLDERS & DOUBLERS

4—E & Hall Flat Folders, 42"-60", with motors.
3—P & W & Windle 46"-60" Doubling, Reeling & Measuring.

COATING MACHINES

Plastic and rubber coaters, 50"-72".

SEWING MACHINES

5—Morrow 60ABB & 60D3B on stands and tracks.
3—Union Special and Singers.

BRUSHING MACHINES

2—P & W Cloth Brushers, 72" & 100".

SLASHERS

3—Saco-Lowell Cotton Slashers.

DYE BECKS

12—Morrison & V.V. 6' to 9' Dye Becks, stainless steel and wood tubs.

WASHERS

1—Continuous 60" Boil-Off Machine, steel tanks.
1—Van Vlaanderen 60" Open Washer.
2—Open Washers, 5 & 8 compartments, 50" face.
6—Compartment 30' Washer, 66" wide.
1—3-Compartment Monel Rotary Washer.

CALENDERS

2—V.V. Ball Bearing Calenders, 50" & 60".
6—V.V. Butterworth & Textile, 3, 6 & 7-Roll Hydraulic Calenders, 80".
3—Butterworth & Perkins 40", 54" & 80" 3-Bowl Schreiners.
1—Butterworth 3-Roll 54" Friction Calender.
2—54" and 65" Embossers.

SHEARS

3—P & W 2-Blade Shears, 60" & 66½", complete with list saving device and brushes.

DECATERS

3—P & W & Yale Decaters 72".

DYE JIGS

2—Morrison 60" Dye Jiggs.
12—Morrison & Butterworth 45", 72" & 74" Jiggs.

DRY CANS

355—Dry Cans, 50" to 112" face, 23" to 84" dia.

PRINT MACHINES & EQUIPMENT

2—BTA & BTS Motors, 25, 35 & 50 horsepower. Star gears, mandrels, copper pans & doctor blades.
1—Franklin 3-Color 45" Print Machine. Complete with Jack, and 8 Copper Rolls.

PRINTING MACHINES

7—R. B. & F 1-10 color Print Machines, 40"-60".
1—Waldron 4-Color Wallpaper Print Machine.
1—V.V. 10-color Ribbon Print Machine.

TUBERS

5—Tubing & Measuring Machines, 50"-60".
1—Hermas 60" Measuring Machine with Motor.

KETTLES

9—Textile Copper Steam Jacketed Color Kettles, tilting, agitated, 40-150 gallons.

AGERS

3—Butterworth Cast Iron Agers, 12', 18' & 30' long & 50-60" wide.

WEAVING MACHINES

24—C & K 92" automatic looms.
13—C & K 82" automatic looms.
10—Draper 79" automatic looms.
52—C & K 52" automatic looms.
24—C & K 4x4 Automatic Tapestry Looms, 64".

CARDING MACHINES

6—Sets D & F Worsted Cards, 60x54".
2—Sets S & F Worsted Cards, 54"x54".
2—Furbush Worsted Cards, 48"x48".
15—D & F Breaker & Finisher Cards, 48"x50".
8—Sargent, Bramwell & Harwood Feeds, 26-72".

SPINNING MACHINES

138—Whitin & D & F Spinning Frames, 240 spindles, 252, 2" & 3" gauge, band-driven.
100—Deliveries H & B Drawing Frames, 12" coilers.
12—Universal #50 & #90 Winders.
22—Whitin D-2 Combers.
12—Hetherington Sliver & Ribbon Lap Machines.
1—Barker Triple Rub 3-Bank Condensor.
3—High Speed Beam Warpers.
4—Pangborn Dust Collectors.
7—D & F 240 & 330 spindle Mules.
1—J & B 336 spindle Mule.
2—Foster #101 Cone Winders.
1—60" Spiral Breaker.
6—Platt Worsted Mules.
2—C&M & Sargent 40" & 56" Burr Pickers.
2—36" & 40" Mixing Pickers.
2—S-P & Woonsocket Slubbers, 11x5½, 72 sp.
4—Altemus 72" Sectional Warpers.
1—Whitin Intermediate 10x5, 108 sp.
4—Taylor-Wadsworth Gill Boxes.
1—Saco Lowell Vertical Opener.

FULLING MILLS

2—James Hunter #10 Fulling Mills.
1—James Hunter Hammer Fulling Mill.

GARNETTS

3—James Smith 3-cylinder Garnetts.
1—P & S Single Cylinder 20"x60" Garnett.
1—P & S 2-cylinder 20"x60" Garnett.

KNITTING MACHINES

150—1" to 21" Circular Knitting Machines.
4—Wildman 23" Ribbers.
2—Grosser Knitting Machines.

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PACKAGE DYEING PLANT

• *NAME WITHHELD* •
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Thursday April 5, 1945, 11 A.M.

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18—Franklin Process PACKAGE DYEING MACHINES: 600 lb. to 1 lb., Cast Iron, Bronze and stainless steel

32,000—Brass **Franklin Springs**

18,000—Stainless & Chrome plated **Franklin Springs.**

6—Single and Double TUBE DRYERS, 300 lb., 100 lb., 6 and 24 lb.

4—26" & 30" CENTRIFUGAL EXTRACTORS V-belted to motors

1—**Monel** 12-Arm Smith Drum SKEIN DYEING MACHINE

1—**Stainless** 3-Arm SKEIN DYEING MACHINE

14—Luther 2 Brush GLAZING MACHINES

1—**Permutit** dual system WATER SOFTENER, 60,000 gal. capacity per unit

78—Universal WINDING MACHINES #50

160—A.C. MOTORS, 15 HP. to ½ HP., 3/60/220 Volts

Complete LABORATORY, MACHINE SHOP, Small Tools and Supplies

Large lot of OFFICE EQUIPMENT including $17,000. REMINGTON RAND TABULATING UNIT.

New and partially opened DYESTUFF AND CHEMICALS, valued approx. $15,000.

50—Ton of PIPE, SHELVES, FITTINGS.

Electrical Supplies including 50 **Fluorescents,** 6-100 KVA **Transformers,** 160 MOTORS, etc.

MISCELLANEOUS: Platform Trucks, Dollies, Lift Trucks, Printing Presses, Skein Making Reels, Hand Trucks, Humidifiers, Fans, Trap Valves, Pumps, Pressure Blowers, Turbo Compressor, Paper Baler, Toledo Springless Scales, Tools, Supplies, Parts, etc.

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Send for Illustrated Circular

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HOFFMAN PRESS like New & BOILER
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15—TOMPKINS KNITTING TABLES

EXTRA-CYLINDERS
(Both Spring & Latch Needles)
KNITTING PARTS
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(All makes and Gages)

2—DAVIS & FUBER 80 inch NAPPERS
Davis & Furber 80" NAPPER GRINDER
Bruce Power DIE CUTTING MACHINE
McCREARY 4 roll STEAM CALENDER
2—Firsching SLITTING MACHINES
1—Ireland SLITTING MACHINE
1—Grand Rapids SLITTING MACHINE
1—Adams SLITTING MACHINE
4—PAYNE 40 sp. BOTTLE WINDERS

Geo. E. Smith Textile Machinery Co.
P. O. BOX 46 COHOES, N. Y.

FOR SALE

60" Broadbent Extractor
42" A.T.6M. Co. Extractor
12" Daniels Rag Cutter
66" P & W Cloth Shear
No. 90 Universal Winder
No. 8 Sturt. Exhaust Blower
60" Windle No. 4 Doubling & Cloth Winding Machine
72" P&W Cloth Roll-up Mach. with Kaumagraph
3-ton Hussong Rotary Air Hoist
1000 GPM Centrif. 2-stage Pump

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Used & Rebuilt Wool Machinery
15 Hathaway St. Boston 10, Mass.
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1—Duesberg-Bosson (Belgian) 40" Mixing Picker ....$1,500.00 U. S.
1—Sargent Duplex 36" Burr Picker, $1,500.00 U. S.
2—60" Apperly Feeds...$150.00 U. S.
1—48" Apperly Feed....$150.00 U. S.
1—Proctor & Schwartz Raw Stock Dryer, 29 feet long x 13 feet wide x 5½ feet high, cap. 200 lb. hour $1,500.00 U. S.

All above in good order, offered subject being unsold, F.O.B. mill floor, crating extra, terms cash.

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All types of hosiery mill equipment on hand

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7 ROLLS—80" FACE

3 Composition Rolls, 4 Steel Rolls, Hydraulic lift —water-cooled journals. Located in South

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13 Foster No. 30 winders, belt drive. 2 Foster No. 12 winders, individual motors. Now running. Available Feb. 15th to March 1st. Offer subject prior Sale.

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100—Draper Model K 45" Looms, Belt Driven, 8" Bobbin.

20—4 x 1 C & K Hand Threading Looms, 43½".

190—1 Box Automatic Hopedale Plain Looms.

600—Draper Automatic Looms with Slashing Auxiliary equipment.

200—C & K 2 x 1 Looms.

200—600 hook C & K Double lift jacquard heads.

32—C & K #1304 Fine Index Double lift single cylinder heads.

WINDERS

20—Universal Winders with Bunch Builders.

SLASHER

1—Howard & Bullough Two-Drum Cotton Slasher, with 7' x 5' diameter Copper Cans.

DYE PADDERS

1—Butterworth 2 Roll Dye Padder, Brass and Rubber Roll, Motor Driven.

1—Butterworth 50" Dye Padder or Mangle, Top Roll Soft Rubber, Bottom Roll Hard Rubber, Rolls approximately 12" diameter, Copper Trough, Reeves Drive, A.C. Motor.

EXTRACTORS

2—60" Steam Driven Centrifugal Extractors, Perforated Copper Baskets, Quick Opening Cover, 600 R.P.M.

1—Kranz, 42" Centrifugal Extractor, enclosed motor, perforated copper basket, quick opening safety Cover AC Motor drive.

CAN DRYERS

1—6 Can Dryer, Copper Cans, 23" diameter, 50" face, complete with exception of motors.

1—10 Can Dryer, Copper Cans, 23" diameter, 50" face, complete with exception of motors.

1—Textile Can Drying and Rolling-up machine, Copper Can 36" diameter, 50" Face.

1—Textile Finishing Machinery Company set of 8 Copper Cans—2 Stacks, 4 Cans to a Stack, Vertical Stacks, 50" wide.

1—Textile Finishing Machinery Co. Copper can dryer consisting of 8 cans, 23" dia. 54" face with take-up, let-off. Reeves Variable speed transmission.

1—Textile Rolling-up and steam machine equipped with copper can 40" dia. 48" face.

1—Textile Finishing Machinery Co. 8 Can Dryer, consisting of Copper Tinned Cans, 23" diameter, 54" Face with Take-up, Let-off, Reeves Drive, A.C. Motor.

1—Van Vlaanderen 5-tier, 4 section Conveyor Dryer, with Rods, 60" face, Motor Driven Fans, Airfin Heating Units.

COTTON SPINNING UNIT

5,000 Spindles, with Picking, Carding, Slubbers, Intermediates, Motor Driven Spinning Frames, Motor Driven Twisters, Speeders, Winders.

SPECIAL

DYE JIGGS

1—Rice, Barton & Fales Dye Jigg, 50" Roll, Wooden Tub, Metal-lined, complete with 2 Motors, 230 Volt, D.C.

3—Morrison 50" Stainless Steel-lined Dye Jiggs, Tilting Expanders, Rubber Beam Rolls, all accessories, including V-Belt Drive and A. C. Motor.

4—Textile Dye Jiggs, 54" Wooden Tub, 2 Rubber-covered Ball Bearing Top Rolls, 4 Stainless Steel Immersion Rolls, Bevel Gear Drive with 1 De-Laval Worm Reduction Gear Unit, direct connected to Lincoln 10 H.P. A. C. Motor, 550 volts, 60 cycle, 3 phase, 1200 RPM, with Control.

TENTER FRAMES

1—Textile 40' Pin Tenter Frame, Link Belt Drive, #3 Reeves General Electric 5 HP, 60 Cycle, 3 Phase Motor, 60" wide, General Electric Guiders, Steam Heating Coils.

1—Winsor & Jerauld 40' Tenter Frame stainless steel clips. Reeves drive. A-C Motor.

1—Van Vlaaderen 50' goods, equipped with Marshall Williams Stainless steel clips. Reeves Variable speed transmission. All accessories.

1—50' Van Vlaanderen Tenter Frame, 50" wide, Enclosed Gears, Reeves Variable Speed Transmission.

COTTAGE STEAMER

1—Robert Metcalf Cottage Steamer, 10' long x 8' wide.

DYE BECKS

1—Stainless steel lined 18" die beck Tank 18" x 30" x 98" Single Slot reel, Brass Idler rolls. Geared link chain drive.

QUETSCHES

1—General Machine Co. 50" 2 roll Quetsch equipped with brass rolls.

1—Van Vlaanderen 3 roll quetsch 60" face, Motor driven, chain drive by 1 h.p. General Electric AC Motor.

1—Van Vlaanderen 65", 2-roll Quetsch, Brass Rolls, Reeves Drive, Ball Bearing.

1—General Machine Co. 2-roll Quetsch, 50" Brass Rolls, Bottom Roll approximately 9" diameter, Top Roll approximately 7" diameter, arranged for Motor Drive, no Motor.

KNITTING MACHINES

120—Scott & Williams Circular Latch Needle Knitting machines, 10" to 22", 10, 11, 12 and 13 cut. Large stock of new needles.

DOUBLERS AND TUBERS

1—Parks & Wilson 54" Doubling and Reeling.

1—General Machine Co. 50" high speed tuber with Reeves drive.

SCUTCHERS

1—Textile 58" Roller bearing Scutcher.

1—Textile 58" Scutcher, Roller Bearing, Pulley Drive.

SEWING MACHINES

Singer, Union Special, Merrow, Metropolitan and Willcox & Gibbs Flatlocks.

COUNTERS

34—Veeder-Root, Cloth Counters.

FOLDERS

1—Eastwood Gray Goods Folder, 60" wide.

3—E & H Flat Folders, 45" to 60" wide.

FINISHING CALENDERS

1—Butterworth 42" Hydraulic Schreiner 2 Bowl Calender, equipped with Cotton and Steel Engraved Rolls, Gas Heated Friction Unrolling and Batcher, Tension Rolls, complete with Accumulator and Pump, direct connected to General Electric 3 H.P. A.C. Motor, 50 Volts, 60 Cycle, 3 Phase, 900 RPM. Type M.T., with Drum Controller, Magnetic Switch and Grids.

GAS MIXING UNIT

1—Kemp Gas Mixing Unit with Gas burners.

KETTLES

7—Copper Steam Jacketed Mixing Kettles, equipped with Double Motion Bronze Agitators, 70 to 350 Gallon capacity.

METERS

G. E. Steam flow meter.

DECATORS

1—Parks & Woolson 72" Semi-Decator, with Blanket, Nash Vacuum Pump and Motor.

PRINTING MACHINES

1—Laboratory printing machine.

1—Werner Single Color printing machine 47" face.

2—R. B. & F. 42" Multicolor printing machine.

PRINT MACHINE MOTORS

5—Print Machine Motors, 23 to 35 H.P.

NAPPER

1—Woonsocket Napper, 36 Rolls, 80" Roller Bearing on Workers and Main Cylinder, with Pleater, Twin Cone Type Speed Control, new Bent Wire Clothing, ercellent condition.

OPEN SOAPER & WASHER

1—Textile 66" Open Soaper and Washer, 6 sets of Nip Rollers, Wood Tubs, Brass Immersion Rollers, Reeves Drive, Pleater, A.C. Motor.

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Six complete power plants, just purchased from the Georgia Power Company, which include:

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CALENDER, 3 roll, Friction 55"
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DRY CANS, 14, tinned copper, 68" x 23" horizontal
DRY CANS, 12 Copper, 90" face x 23" vert.
DRY CANS, 12 Copper, 12' x 23" Vert.
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EMBOSSER, 54" Textile 2 pair rolls, lever or Hyd. set, optional
EXTRACTORS, Beam, 50" & 60" VV
EXTRACTORS, VV Copper basket 60" & 54"
EXTRACTOR, 60" VV rubber basket, loading reel
EXTRACTOR, 48" Hercules, tinned copper basket open top
EXTRACTOR, 48" Tolhurst copper basket
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PRINT MACHINE, 1 color 60"
PRINT MACHINE, 10" sample
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QUETCH, 2 roll 62" lever pressure
REELING & DOUBLING Machines, VV
REEVES Drives, 000 Horiz. Enclosed
RIBBON FIN. UNIT, Complete, quetch, cans, calender, motor.
RIBBON PRINTING MACHINE, complete 10 color
SEWING MACHINES, Arlington, Bicycle
SEWING MACHINES, Merrows
SHEAR, Hermas 4 knife, 70" wide
SHEAR, P&W 66", double
TANK, rubber lined & covered
TENTER Dryer, Pin, Miller 20th Cent.
TENTER Dryer, Pin, Butwth 5 pass
TENTER Dryer, Pin, Butwth return 1933
TENTER FRAME, W&J 50'x50" wide
TENTER FRAME, VV 50'x60" wide
TENTER FRAME, W&J 30'x50" wide
TIGERS, Dry P&W & C & M
TUBER, Paterson, Variable speed motor
TUBERS, Van Vlaanderen
WARPING MILLS, 3 ydx180" face comp. with dial
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WOOL WASHER, J. Hunter 6 and 8 ft.
WATER SOFTENER & FILTERS
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TEXTILE MACHINERY AND APPLIANCES
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Foster Tensions #32-83.
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1—72 Spdl. S-L 12x6 Slubber.
1—Sturtevant Multivane Blower, size 5, des. 3.
2—Sturtevant Blowers #30 and #29.
1—S-L 7x3 ½ 152 spdl. Speeder.
1—Sargent Yarn Conditioning Machine.
1—C&M 44" Inspecting Mach. with type A rolling up head.
Picker Aprons plain slatted & spiked.

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Piece Carbonizing Unit
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With and Without Mules
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1—Finishing Range consisting of:
1—114" Pad—Rubber & Brass Roll
1—Set of Squeezer
24—Dry-Cans (19 Tin—5 Copper)
1—Batcher 112"
1—500 Gal. Mixing Tank
2—Reeves Drives
1—60' Tenter 50" Monel Clips
1—Set of 108" Drying Cans (50 Copper—3 Tin)
1—50' Gessner Apron Press
1—54" Embossing Calender
2—44" 2 Roll Hydr. Calenders
3—E & H Hookers 38"-42"-43"
1—New Continuous Back Grey Washer Stainless Steel (Waldron)
1—Pin-Tenter 115' Long—290" Wide
1—102" Clip Tenter (Textile) 40'
1—36" 3 Roll Hydr. Calender
1—50" 3 Roll Silk Calender
1—PHA. Warp Drier Ins. Housing
1—117" Washer (Rubber Rolls)
1—42" Hydro Extr & Motor
1—300 cu. ft. Compressor
1—136" Warp Splitter & Boxes
1—5 Can Johnson Slasher 54"

TEL. DEXTER 9650 **1128 N. MAIN ST.**
PROVIDENCE, R. I.

WANTED
66" Gessner Dble Bed Rotary Cloth Press
30" or 36" Motor Driven Hydro-extractor
48" Floor Stand with Traverse Grinder
22" x 41½" Big English Kitson Rag Picker
24" Gerry wooden Box Duster for wool
12" Coiler for Worsted Card
W-213, Textile World
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WANTED
Brownell or similar machines for twisting heavy cords 8 x 10 spools. Rewinder for Rope type reels.
W-211, Textile World
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• YOUR UNCLE SAM •

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Reliable Textile Equipment

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4—CARDS, 2 cylinder 60 x 48, Shoddy.
2—CARDS, 3 cylinder 48 x 48, Woolen.
6—CARDS, 2 cylinder 48 x 48, 60 x 48, 60 x 54, Worsted.
6—COMBS, T&W, C&K with Circles.
2—CONDENSERS, Tape for 72" Cards.
6—FEEDS, Bramwell & Scotch 40" & 60" Cards.
1—H&S 2 Spindle Ball GILL.
1—P.S. Double Can Open GILL.
4—P.S. & H&S Single Head Open Top FINISHERS.
4—INTERMEDIATES 9 x 4½ x 7½ Gauge.
8—MULES 2" Gauge 220 to 420 Spindles.
6—MULES, WORSTED 650 Spindles.
1—PICKER Atlas #2, 24".
2—PICKERS, Rag B.B. 18x26.
1—PICKER, Mixing 42" with Feed.
2—SHREDDERS 60x30 Heavy Duty.
4—SLUBBERS, 12x6x10¼" Gauge.
4—SPEEDERS, 8x3½x5¼" Gauge.
8—SPINNING FRAMES 2" Ring, 3¼" Gauge.
30—SPINNING FRAMES 1¾" Ring, 2¾" Gauge.
2—SPINNING FRAMES Wool 2¾" & 3½" Ring.
6—JACKSPOOLERS 35½" & 40".
75—TWISTERS, Rayon Double Deck 3½"x8", 128 Spindles.
6—TWISTERS 3½" Gauge 168 Spindles, each.
4—TWISTERS 4" Gauge 128 Spindles each.
4—WINDERS, Lazenby 30 Spindles each.
1—WINDER, Foster #101, 80 Spindles.
4—WINDERS, Foster #30, 100 Spindles, each.
2—WINDERS, Bottle Type 48 Spindles each.
2—WINDERS, Universal Super-Cone 14 Spindles each.
100—Draper Model E Looms 30" Belt Driven.
150—Draper Model E Looms 36" Belt Driven.
30—Draper Model E Looms 40" Belt Driven.
40—Draper Model E Looms 44" Belt Driven.
75—Draper Model K Looms 40" Belt Driven.
65—Stafford 40" Looms Belt & Motor Driven Units.
45—C&K 4x1 45" Motor Driven.
10—C&K 4x4 48" Belt Driven.
4—C&K 4x4 76" Motor Driven.
22—C&K 82" Automatic 4x2 Convertible Looms.
6—C&K 82" 4x4 Belt Driven.
20—C&K 92" Automatic Cam Looms, 2x1 Box, motor driven.
37—C&K 92" 4x4 Box, motor driven.

DYEING & FINISHING

1—AGER 30' x 50" wide.
1—BATCHER 2 roll 66½".
2—BRUSHING Machines Vertical 62".
1—CALENDER, Friction 3 roll 42".
1—CALENDER, Friction 3 roll 56".
2—CALENDERS 3 roll Cotton 50".
2—CALENDERS 5 roll Cotton 50".
3—CALENDERS Schreiner 40", 70" & 80", 3 roll Units.
1—CALENDER 4 roll 100".
2—DOUBLERS 54" & 60".
1—Set DRY CANS 41" x 23", 5 cans.
1—Set DRY CANS 75" x 30", 16 cans.
2—DRYERS, Pin 65".
2—DRYERS, Raw Stock 350 lb.
1—DRYER, Skein conveyor type 100" wide.
1—DRYER, Skein Truck Type.
2—DRYERS, Tubular Knit-goods, 11 Aluminum Baskets.
1—DYEING Machine, Raw Stock, 1250-lb.
2—DYEING Machines, Skein 21 & 28 stick units.
1—DYEING Machine, Skein 39 Arms, monel metal.
4—DYEING Machines Hussong 1000-lb each.
6—EXTRACTORS 24" to 50" Baskets.
2—EXTRACTORS 48" Raw Stock, Monel Baskets.
1—EXTRACTOR, Vacuum 72" pump & motor.
1—DECATUR—Semi, 68" x 21".
1—FOLDING & DOUBLING Machine 90" cloth 18" to 40" adjustable Folds.
1—FULLING MILL Double Compartment.
2—HUMIDIFIERS, Bahnson motor driven.
3—MANGLES 42", 50" and 66".
1—MEASURING & ROLLING Unit 80".
1—NAPPER, Knit Goods 72".
2—NAPPERS, C&M Single Roll 66".
2—NAPPERS, Cotton 80" D.A. 20 roll units.
3—NAPPERS, D.A. 80" 36 rolls.
2—PRESSES, Rotary 66" Double Beds.
2—QUETCHES 50" & 60".
8—SHEARS 36" to 84" Single & Double Blade Units.
2—SQUEEZE SETS 80" used on Slasher.
1—STEAMING or CLOTH CONDITIONER 68".
1—SUEDING Machine 62" with 5 B.B. rolls.
1—TENTER FRAME, Clamp 10'x40".
1—TENTER FRAME, Clamp 30'x62".
1—TENTER FRAME, Clamp 30'x58".
1—TENTER FRAME, Clamp 90'x50".
1—TUBER 40" with Board Fold Attachments.
1—WASHER 400 gal. tank 66" squeeze rolls, Folder.

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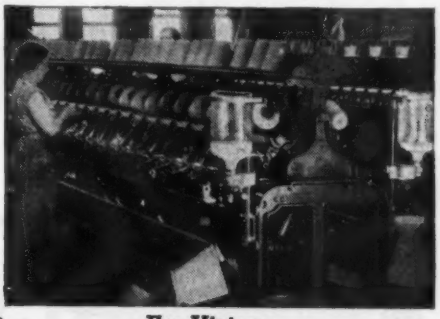

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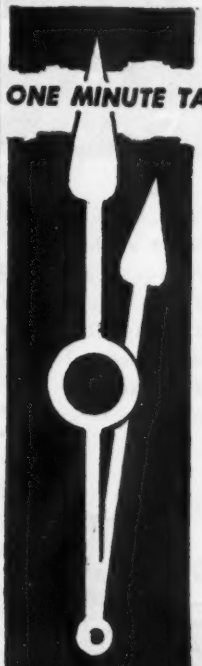

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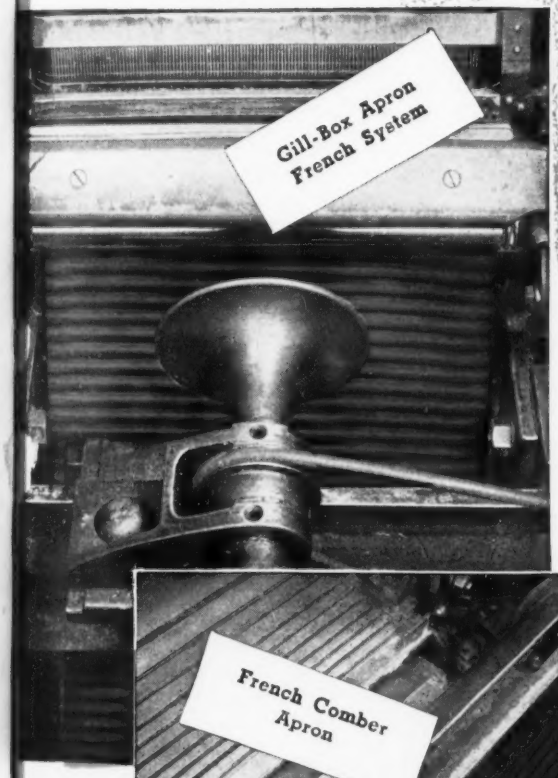

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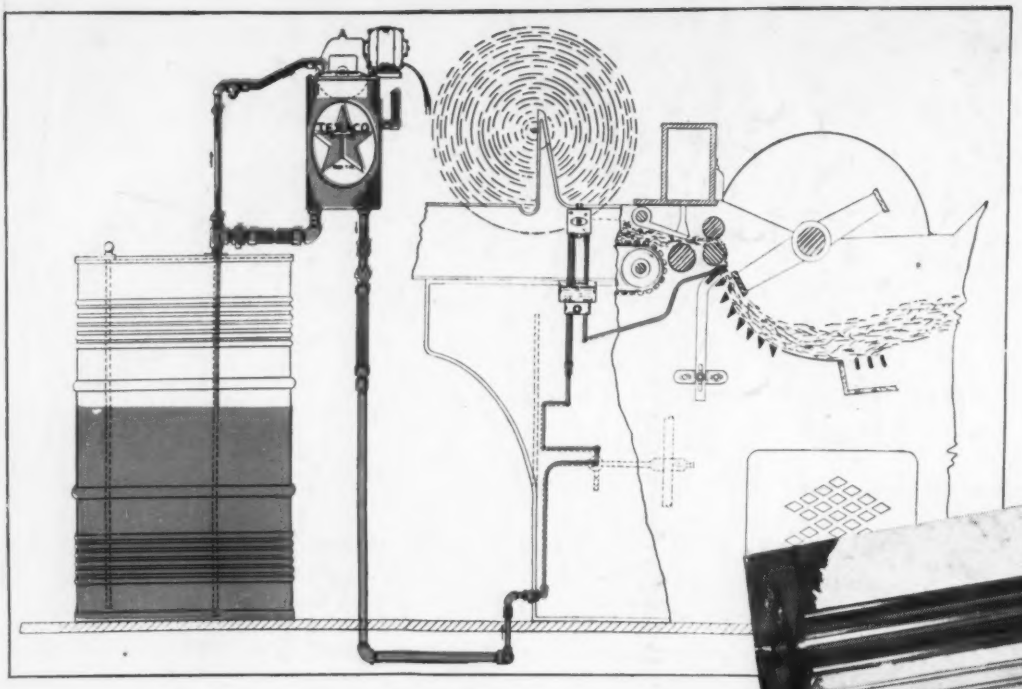

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